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Fred C.
Gloeckner
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CHRYSANTHEMUM
MANUAL
1952



Gloeckner

CHRYSANTHEMUM CUTTINGS

When Better Chrysanthemums Are Grown— Will you grow them?

The potentialities yet undeveloped in the chrysanthemum are tremendous. To be successful with chrysanthemums you will need to become an expert now and even more so in the future. Chrysanthemums are becoming easier to grow because we are getting to know more about them, but they are also getting to be more complicated because of their versatility. Variety is one advantage the chrysanthemum has over other flowers and we need to know how to utilize this advantage to materially stimulate the sales of our product.

The plant breeders are producing varieties that have been bred for continuous flowering. Some varieties will do satisfactorily during the short days and low light intensity of December and January but will not produce well during June and July. Likewise, some varieties will elongate and set buds in temperatures near 50° while others require 60° or better.

Time tables and flowering schedules have no specific application unless the grower can assure himself completely unchecked growth throughout the whole life of the plant. To do so means uniform temperature control, uniform watering, uniform and intelligent fertilizer application, the elimination of hard pinches, proper regulation of the length of day by the application of black cloth or additional light.

Our representatives are all well versed in the culture of chrysanthemums. They know the peculiarities of the various varieties and are capable and skilled in planning your requirements for the coming season.

It is a *Gloeckner* service to make available the latest cultural information on this crop.

Our interest in you and your crops by no means ends with the sale, as we are more than anxious to have the materials we sell, grow and prove profitable.

^{Fred C.}
Gloeckner
&
Company
Incorporated

15 EAST 26th St., NEW YORK 10, N. Y.

LExington 2-4197

At Madison Square

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TERMS OF SALE

Fifty rooted cuttings of each variety is the **minimum** that can be supplied.
More than **50** of a variety must be in **multiples of 50**.

Any **changes** or **cancellations** of chrysanthemum orders must be received at least 30 days before shipping date.

Every effort is being made to deliver stock which is free from stunt, but purchases must be made with the understanding that we assume no responsibility for losses which may result from stunt.

Gloeckner

CHRYSANTHEMUM CUTTINGS

Better Chrysanthemums CUTTINGS

PAGE 1

RECEIVED

☆ JAN 3 1 1952 ☆

U. S. Department of Agriculture
Wilt and Stunt free

To grow good chrysanthemums the first requisite is starting with Verticillium cuttings. Wilt free cuttings are easily secured. Now with the extreme care in selecting stunt free stock and the careful handling we are very optimistic in stating that stunt should be practically nil in the stock for the coming season.

Handling Cuttings

The cuttings you receive have been propagated in a material containing some organic Material which naturally has some plant food, consequently these cuttings can be planted directly into the final location. Ordinarily they will not require shading, but but if they have been several days in transit and have softened up some, or if they are planted during warm, bright weather shading with aster cloth or paper is advisable. Under no circumstances leave the covering on the plants during dull weather or at night. It is well to syringe the plants frequently until they stand up and are showing signs of growth. Some evidence shows that watering with a starter solution (weak nutrient solution) within 48 hours after planting will speed up the growth.

Deliveries

With the advent of the time pinch and the precision method of culture it is necessary to have your cuttings arrive at a definite date. To insure proper delivery you must plan your cutting requirements months in advance of the date wanted. We would appreciate it if you could let us know your requirements so that our propagator could plan his growing of stock plants and cuttings more systematically.

To facilitate deliveries, cuttings will be shipped on Mondays and Tuesdays of each week.

Delays

With the reduced delivery schedule of the Railway Express Agency there may be delays in delivering your shipments. Chrysanthemum cuttings will be injured from cold as well as being too long in transit. If the cuttings are slightly wilted, they can be immersed in water for a short period and then planted. They will react perfectly to such treatment. If the cuttings have been slightly frozen, placing them in a cool room and thawing them out gradually, or placing them in a pail of cool water to take the frost out will bring them through so that they will do just as well as cuttings that have had nothing happen to them. Of course, if stock is badly frozen, or if long delays have occurred so that the cuttings are heated, yellow or rotted, a claim should be filed at once with the express company.

Air Freight

We have been very well satisfied with the use of Air Freight to deliver rooted cuttings this past season. Customers who are close to an airport are naturally served better than those who have to have their shipment reconsigned via Railway Express. If you are planning on using air freight it is well to have your telephone number appear on all shipping labels.

Premature Budding

Bud initiation can occur anytime during the spring months, whenever your temperatures in the greenhouses are consistently 60 degrees Fahrenheit or above, and the days are short enough to initiate bud setting. These conditions can occur anytime up until May 1st depending upon the variety and the locality in which they are being grown. Some varieties such as the garden varieties and early shading varieties require very little short day treatment, coupled with high temperatures to initiate buds. This same tendency to set bud readily is what makes these varieties desirable for early shading and garden work. In order to prevent this premature setting of buds, these same varieties should be placed where they can be given additional light during the early spring months. Use 60 watt bulbs spaced 4 feet apart and 24 inches above the plants. Use the lights for a period of two hours each night after dark up until May 1st, then discontinue lighting.



Healthy Well-Rooted Cuttings



Taking Cuttings From Stock Plants

Gloeckner

CHRYSANTHEMUM CUTTINGS

*Cultural Pointers***SOILS**

Chrysanthemums will grow in a wide range of soil types but a fibrous silt loam is preferred. Blue grass sod to which rotted manure has been added plus an application of super phosphate will give excellent results. Porosity to permit penetration of water and a uniform supply of fertilizer are the reasons for the great care in soil preparation. If water remains on the surface of your soil for more than a few moments after watering your soil is not of good structure.

Acidity

Evidence shows that the soil reaction should be slightly acid pH 6.5, although in many instances a neutral medium does very well. If your soil tests slightly alkaline apply $\frac{1}{2}$ to one pound of agricultural sulfur per 100 square feet of area. However, if your soil is acid apply 3 to 5 pounds of agricultural ground limestone per 100 square feet of area.

Steam Sterilization

Steam sterilization is the only practical means known to destroy the verticillium wilt organisms present in many soils. The cuttings you purchase are free from wilt but if planted in soil that is not steam sterilized many will contract the trouble.

Old soil when properly managed will give comparable results with fresh soil. Add a quarter of the volume of humus in the form of manure or peat moss. Steam sterilize to destroy the verticillium wilt fungus as well as improve the structure of the soil. Steam sterilization may be done with the use of three inch tile or down spouting with $\frac{1}{8}$ holes drilled every six inches on each side of the pipe. Use two lines in a three and one-half foot bench. Ridge the soil to the center of the bench directly over the lines, covering with tarpaulin, canvas or sisalkraft. The Thomas method is very similar with the exception that the pipe is laid on top of the rototilled soil and then covered so as to make it airtight. The Thomas method is not recommended where purlin posts are in the bench.

By introducing the steam in the center of a 100 foot bench and sending the steam both directions a more thorough sterilization is accomplished than if the steam were to be forced in at the end of the 100 foot bench. Cover the sides of the benches so that the entire bench and contents are heated to 180°F. Remove the covering one hour after the steam has been cut. This allows the excess moisture to pass from the soil as vapor. Leach heavily immediately after sterilizing to reduce excess fertility.

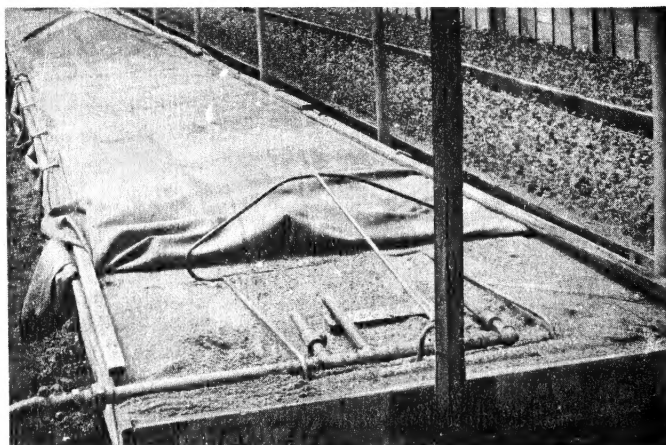
Chemical Sterilization

A chemical which has proven its worth is Larvacide. This material must be used when the greenhouses are empty to avoid injury to adjoining crops. This gas is applied in liquid form with a special applicator so that 2 or 3 c. c. are applied at 10 inch centers. The soil should be moist before applying. A good suitable covering should be placed over the treated soil to keep the gas in the soil for at least 48 hours although a water seal applied 2 to 3 times every 24 hours will suffice. The soil temperature should be at least 60 degrees or higher. When used properly you can expect favorable control of insects, diseases and weed seeds.

Dowfume MC 2 has been tried and found to control nematodes, weed seeds, and some damping off organisms. Best results are obtained when the soil temperature is above 60°F. About the same procedure should be followed in its application as that described for Larvacide.



Supporting Standards with the String Method



Thomas Method of Steam Sterilization

Cultural Pointers

SOILS

Aeration

Proper drainage and proper aeration of the soil are very vital to good growth. Many times improper drainage of the bench or bed is the reason for a poor crop. No wet spots should ever be present. Soil drainage may be improved by the addition of various materials. Any coarse organic material such as manure, alfalfa hay or clover hay applied at the rate of not to exceed one-fourth the volume will separate the soil particles sufficiently to increase pore space.

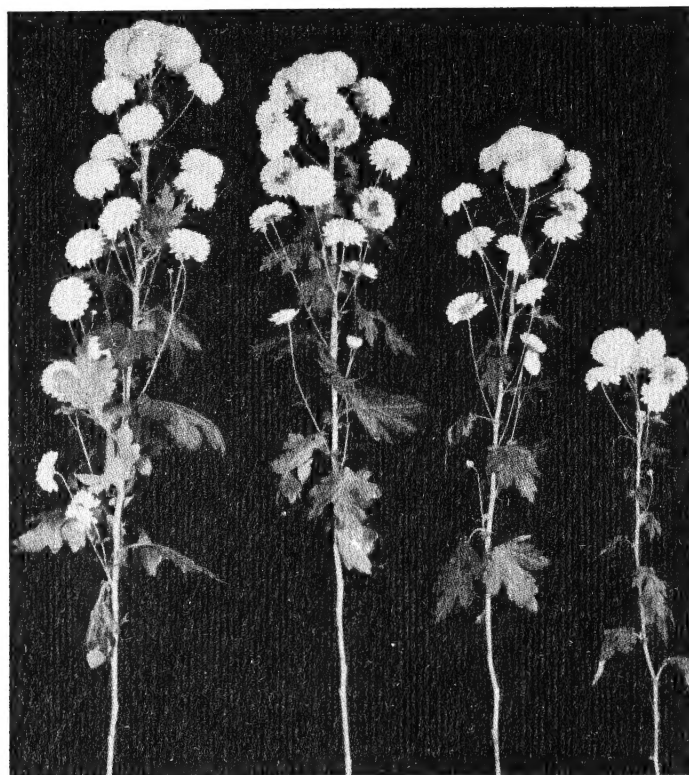
Adding several bushel of peat per 100 square feet of bench area after leaching and worked into the top inch of the soil will help keep the surface open and porous. Heavy applications of sand to a soil have not always proven of value to a chrysanthemum crop. Aeration may also be increased by proper cultivation of the soil.

Soil Management

Soils vary a great deal over the country and yet many good crops of chrysanthemums are grown on all types of soil. Soil itself is not the most important but soil management is of extreme importance. In considering the management of soil the following pointers are suggested:

1. Apply a quarter of the volume of manure or other organic substitute once a year, usually just before steam sterilization, rototill organic matter into the soil. When growing on ground beds watch the tilling so that no impervious layer is formed which will later cause poor drainage.
2. Steam sterilize the soil to a temperature of 180°F, once a year.
3. After sterilization leach with 7 gallons of water per square foot. The amount will vary with the type of soil.
4. Apply 5 pounds of gypsum (Calcium sulfate) per 100 square feet. Apply gypsum just before planting.
5. Test soil for acidity and make correction before planting.
6. Apply 5 pounds of super phosphate per 100 square feet of area once a year. Excess phosphates tie up organic toxins.
7. Wait seven days from time of sterilization to planting.
8. Maintain the following nutrient levels:

Nitrate Nitrogen	5 — 10	p.p.m.
Phosphorus	5 — 10	p.p.m.
Potassium	20 — 40	p.p.m.
Calcium	200 — 250	p.p.m.
Solubridge reading	40 or lower	
9. Water thoroughly at every watering.
10. Apply a complete fertilizer at time of bud initiation. Heavy watering and light on the fertilizer will make chrysanthemums grow.



*Terminal Spray Formation Resulting
From Time Pinching*

Cultural Pointers

FERTILIZERS

Soil structure is the key to soil fertility. The response of chrysanthemums to fertilization depends upon a favorable soil structure. It is known that plants require nutrients, water and air for growth. Good soil structure will provide proper air and water relationships. Therefore, it behooves us to give proper attention to the soil before starting the crop. Good open soil is a necessity.

Feeding

Chrysanthemums do much better right from the start if the soil is not too rich. Very often this crop will start off faster in new soil as compared with old soil that has been sterilized just because of the lower nutrient level in new soil. When using new soil, apply 5 lbs. of super phosphate per 100 sq. ft. of area, plus a liberal application of manure before planting. Phosphorus moves slowly within the soil mixture. It should always be added before the crop is benched so that it may be mixed thoroughly into the soil. One to two applications of a complete fertilizer, such as Electra, made after the plants become established and until color shows will be adequate. Electra applied at the rate of 2 pounds per 100 sq. ft. of bed is sufficient. Never apply fertilizers to a dry soil. Water lightly first, then apply the proper quantity of fertilizer, then water heavily. Liquid feeding with water soluble fertilizers is fast becoming the latest method of applying fertilizer. **Remember that the plant is the best guide as to fertilizer requirements and that more mums are ruined by overfeeding than by nutrient deficiencies.**

Levels of Nutrition

When using sterilized soil the best recommendations to follow would be to analyze your soil from time to time. We have found that when the following nutrient levels are kept, good crops are the result. **Nitrate nitrogen should be 5 - 10 parts per million; phosphorus 5 - 10 parts per million; potassium 20 - 40 p.p.m. and calcium near 200 p.p.m.** To increase the nitrate level feed one pound of ammonium sulfate per 100 sq. ft. of area, and to bring up the potassium apply muriate of potash not to exceed 1 lb. per 100 sq. ft. If phosphorus is needed apply mono-calcium phosphate at the rate of 1 pound per 100 sq. ft.

Liberal application of calcium sulfate (gypsum) 5 pounds per 100 square feet after steam sterilization will prevent injury to young roots. High phosphorus also reduces toxicity after sterilization.

In the cooler weather and shorter days of September omit the nitrogen if the plants are growing freely. The mum assimilates more phosphorus and potassium during the time of bud initiation. Therefore, it is desirable to apply a complete fertilizer shortly after the buds are visible.

Soluble Salts

Soluble salts are chemical compounds consisting of an acid part or ion and a basic part or ion. For example, common table salt, sodium chloride, consists of one ion of chloride and one of sodium. Chloride is an acid forming ion and sodium a basic or alkali forming ion. The two combine in chemically equivalent quantities to form a neutral salt. Other common acidic ions are sulfate, nitrate, bicarbonate, and phosphate. Other common basic ions are calcium, magnesium, potassium and ammonium. Any basic ion may combine with any acidic ion giving rise to a great variety of salts.

All plant nutrients which are absorbed by plants from the soil or from culture solutions are absorbed in the form of salts or their constituent ions. All organic materials become "Mineralized" through decay processes and the nutrients in them are converted into salts before being absorbed by plants. Some salts contain plant nutrients and are beneficial in the small quantities required for plant growth. Others contain no nutrients. All salts are harmful beyond the small quantity required for plant growth. A little is bad, more is worse, up to the point where plants will be killed. Salts are found in most water and are applied as fertilizer. Improper watering may permit a concentration into the harmful range. Instruments called Wheatstone's bridges are available which measure total soluble salts in terms of electrical conductivity or conductance. Many laboratories of the Agricultural Extension Service are equipped with Solubridge instruments for use in assisting with soluble salt problems.

It has been found that **when planting rooted cuttings, the Solubridge readings should not be higher than 40** while established plants do not withstand readings of 100 without showing some harmful effects. To remedy excess soluble salts apply two to three gallons of water per square foot and leach out this high salt content.



**Laboratory Procedure Used in
Developing Disease Free Cuttings**

Cultural Pointers

PLANTING

Chrysanthemums grow equally as well on a raised bench or on a ground bed. The care is slightly different in that raised benches dry out more frequently during the summer and early fall months. It must be remembered that a good circulation of air is desirable, yet a direct draft is not advisable.

Planting Date

The proper date of planting will naturally vary according to when the crop is to bloom. For natural blooming we prefer to plant three or four weeks before the last pinching date. When flowering from August to October we suggest you plant 3 weeks before the pinching date. In the continuous flowering schedule where no pinch is followed we have given the advised planting dates in that schedule.

Planting Rooted Cuttings

Many florists are planting rooted cuttings directly into permanent locations. This not only reduces several handlings and production costs, but also produces a better quality bloom. We fully realize that it is often an impossibility for all to treat their chrysanthemums this way. However, we have found that young, soft plants are superior to hard woody plants. Never plant cuttings any deeper than what they were in the propagating media; too deep will cause stem rot. Water heavily after planting. If new white roots are not formed within the first 12 hours, something is not quite right.

Single Stem Method

Cuttings are planted and allowed to grow without pinching. It is an essential practice if three crops a year are to be realized in the continuous flowering schedule. Where crops are planted from September 15 to February 1, no pinch method produces a superior crop, whereas a pinched crop is weaker and of poorer quality.

Light Intensity

When planting rooted cuttings into their permanent position it is necessary to shade the glass or to put aster cloth directly over the young plants until they are established. When shading the glass be sure that the material is applied lightly.

When growing quality chrysanthemums, the higher the light intensity or the least amount of shade over the plants during the growing season, the better the quality of bloom. In cloth houses the amber saran is superior to the green because of more light under the amber covering. Naturally the plants require more water when growing under high light intensities.

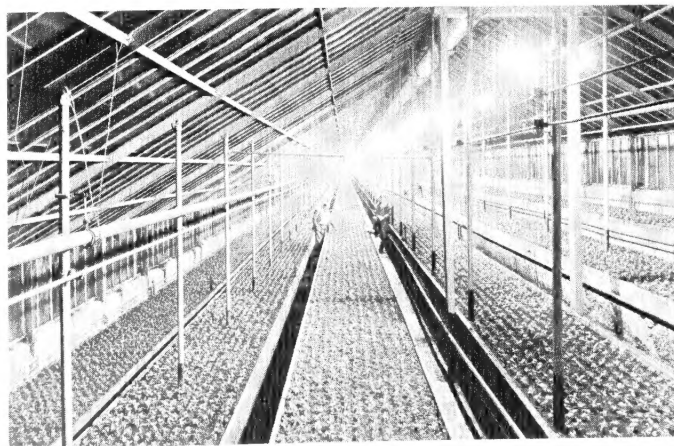
It is recommended to shade the plants when flowers are about one-half open to prevent them from sunburning. When growing standards a good practice would be to stretch muslin directly over the open blooms, this not only prevents sunburning but also keeps the blooms free from dirt.

Distance of Planting

For good quality pompons we prefer to plant 7x8 inches or 8x8 inches pinched once, and thin the shoots to three per plant. The outside rows will support one more stem than the center rows in the bed. Nothing is gained by planting at a closer distance. Light intensity should be high at the base of the plant for quality blooms and if planted too close we have lost the factor which promotes quality. Large flowered varieties are generally planted 8x8 inches or 8x9 inches, this also applies to disbud anemone and single varieties.

PLANTING DISTANCE FOR NO-PINCH METHOD

Flowering Date	Pompons Standards	
May 15—September 15	4 x 6	6 x 5
September 15—November 15	4 x 7	6 x 6
November 15—March 15	4 x 8	6 x 7
March 15—May 15	4 x 7	6 x 6



Applying Additional Light to an Entire House

PINCHING*Cultural Pointers*

For a good number of years the reason for pinching was to regulate the number of stems on the plant. In recent years we have learned that in case of pompons or singles the pinching determines the type of spray formation. With standards, pinching will determine the type of bud formation, whether it be a crown or terminal bud.

Time Pinching

The precision culture of chrysanthemums is all set up around the "Last Pinch." To grow a quality pompon you should receive the rooted cuttings sometime in June, July or August and then plant into the permanent location approximately three weeks before the date listed in our list of varieties under "Last Pinch."

Under the heading "Chrysanthemum Flowering Schedule" you will find the exact pinching dates for all planting dates. The table below will indicate the time to pinch after planting according to various planting dates:

When planting **Nov. 15 to Feb. 14** allow **5 weeks** plant to pinch.

When planting **Feb. 15 to May 14** allow **4 weeks** plant to pinch.

When planting **May 15 to Aug. 14** allow **3 weeks** plant to pinch.

When planting **Aug. 15 to Nov. 14** allow **4 weeks** plant to pinch.

Time pinching standards will eliminate the formation of the crown bud and produce terminal buds which will in turn produce a much straighter flowering stem.

Pruning

Another important factor is to remove all shoots but 3 or 4 per plant, in a few instances only 2 shoots are allowed to mature. Allow more shoots to develop on the outside rows than on the center rows of a bed. When fewer breaks are selected the planting distance should be closer. If you prefer to have a number of smaller sprays, with fewer blooms open at one time, follow the double pinching procedure.

Standards are usually pinched once to induce breaks so that they may be grown two per plant. The strongest breaks are selected and all others removed. It is well to pinch on the date suggested in the general list. Careful observation has shown us that neckiness with some varieties is eliminated by pinching on the respective dates. Singles and anemones are usually grown 3 to 4 stems per plant.

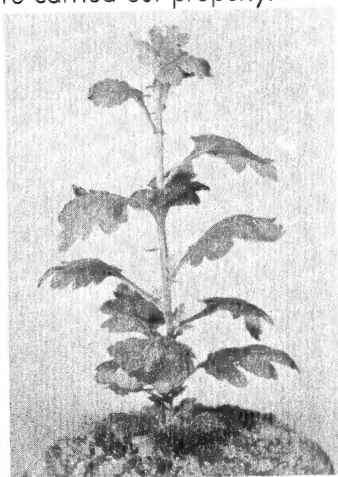
Condition of Plant

When pinching, remove only the soft growth, never cut into the woody stems as this will not produce the type of breaks you desire. It is our experience that it is best not to pinch until the plant has become well established in its permanent location. In all cases it is better to have at least eight to ten inches of growth on the plants before pinching. (Photos below.)

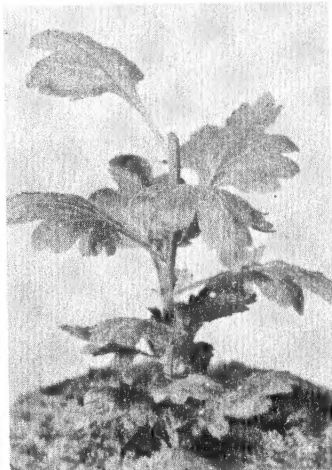
When double pinching, pinch the first time 30 days before the "Last Pinch." This allows enough time to produce a growth long enough to pinch at the proper time.

If by chance you are delayed in planting and your plants will be too tall, it is advisable to pinch early enough before benching so that the breaks will be several inches long at time of planting. Never pinch hard plants at the same time they are planted into the bench, a heavy loss may result. Better wait until plants are established, then pinch.

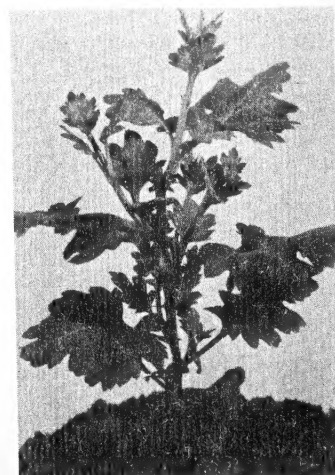
The last pinching dates given after each variety will help you grow that variety to excellency. Remember that pinching is just one cultural factor and will only function when all other cultural points are carried out properly.



Well Established Young Plant



Top Several Inches Removed



Strong Breaks Resulting from Single Pinch

Cultural Pointers

DISBUDDING

Large flowered varieties produce side shoots in the axils of the leaves which should be removed very close to the base at regular weekly intervals. Disbuds are handled the same as standards.

Taking Bud

Taking bud means allowing the flowering bud to remain and removing all others, applies to standards and disbuds. The chrysanthemum usually produces two distinct types of flowering buds—Crown and Terminal. The first bud produced is called the crown bud and is distinguished by being surrounded by other lateral leaf buds. The second is the terminal bud and is surrounded by several flower buds. If the plant is planted especially early, a second crown bud might appear. In appearance this second crown bud is exactly the same as the first.

The procedure of "Taking Bud" depends very largely on the variety. Usually the safest rule to follow is not to select a bud on early or midseason varieties before August 25. In our list of large flowered varieties under "Select Bud" you will find the date on which to select the proper bud. If bud is selected too early a large percentage of the flowers will be crippled. Good common sense must be used to determine the proper selection of bud.

The formation of the crown bud usually does not take place when growing according to the "Time Pinch Plan." When following "Time Pinch" select the first bud that appears. This will result in straight stems without the dogleg growth that appears when second bud is taken.

The final selection of bud should not be made when the cluster buds are too small as this will very likely cause injury to the stem near the bloom. Likewise it is not advisable to delay selecting the bud too long. Some growers like to leave an alternate bud until they are certain that nothing will happen to the one finally selected.

DISBUDDED SPRAYS

The procedure in growing disbudded sprays, is to wait until the crown bud forms, then remove all vegetative shoots but three. Later when terminal buds appear disbud each shoot similar to the normal disbudding of standards. When the blooms mature there are three flowers on each spray. In singles and anemones, the size of the blooms will be a trifle smaller than when they are grown as one flower per stem. Raise three stems per plant similar to straight disbud. Varieties such as Goldsmith, Valencia, etc., can be grown as disbudded sprays.

Good Chrysanthemums result from the careful and thorough practice of the basic principles of plant growth, plus the acknowledgment of certain differences in the nature of various varieties. Growing disbudded sprays is a modification in culture which is very much worthwhile.



Early or Crown bud surrounded by lateral buds



Late or Terminal bud surrounded by flower buds



Late or Terminal bud selected

Cultural Pointers

WATERING

The knowledge of proper watering is essential to success. Chrysanthemums produce extremely heavy foliage and a great deal of water is required at the roots, and under ordinary conditions of bench culture overwatering would be difficult. When grown in beds more care should be exercised in watering. Some soils look wet on the surface but are very dry several inches below.

When planting rooted cuttings directly into their permanent locations it is essential to water thoroughly to set the soil around the plant roots. We suggest double watering again when the soil gets on the dry side. By this time the plants are established and regular watering should be followed. Keep humidity in the house by wetting down bench and walks.

Steam sterilization causes the soil to become more granular and capillary movement of water in it is much slower than in soils not steamed. Cuttings planted in it cannot obtain water readily, and for this reason should be kept more moist than in soils not sterilized.



Superior Nozzle Showing Uniformity of Pattern

Surface Watering

During the past several years many labor saving devices have been developed. Surface watering is one that will save many hours of hand watering your chrysanthemum crop.

The Skinner Superior nozzle is the final answer to the exacting requirements of surface watering. An absolutely flat uniform spray is obtained over a full circle with a constant pattern under any pressure. This nozzle throws a fine spray 5 feet in diameter at 5 pounds pressure at the nozzle, and uses 0.9 gallons per minute.

When installing surface watering, check your water supply and the capacity needed to irrigate your area. It is advisable to have an engineer figure out your requirements.

Leaching

Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. After the soil is sterilized it should be leached. Use a skinner line and allow it to run for hours if necessary. Raised benches do not require as much water to leach.

GRAFT INDEXING

Graft indexing has become standard procedure with Yoder Brothers Inc. eradicating stunt. This was made necessary by the fact that certain varieties express visual symptoms of the virus much more readily than others. There are some varieties which are seemingly tolerant to stunt and which have never been known to express clear cut symptoms of stunt virus. Others, such as Blazing Gold for example will indicate the usual symptoms very readily. In order to check those which do not express the usual symptoms readily, the technique of graft indexing was developed whereby a variety such as Blazing Gold serves as the understock and the variety to be checked for virus is grafted on to Blazing Gold. By this method, it can be told within two months, whether stunt virus is present or not. By making selections in this manner it is possible to eventually select out mother stock of all varieties, and by careful isolation practices, maintain them stunt-free. Until this is accomplished there will always be the chance that certain few varieties, although they do not show any symptoms, may be carriers of the virus and act as sources of infection for other varieties.

Several other virus expressions have made their appearance since stunt. You probably have heard of **Blanche Mosaic**, **Ivory Sea Gull**, **Aster yellows**, **Spotted wilt**, and **Nightingale mosaic**. Fortunately by the use of the above technique, these are isolated early, before any of them will have become so widespread as to cause any great difficulty.

Cultural Pointers

TEMPERATURE AND LIGHT

Chrysanthemums grow most rapidly under conditions of high light intensity and with a temperature above 60°F.

Temperatures much above 90°F will act like a prohibitor. When the night temperatures are in the 90's bud development is hindered, this is especially true when black clothing in the hottest part of the year. To reduce high temperatures under the black cloth it is suggested that the sides of the cloth be lifted after sundown and dropped again before the sun rises in the morning.

Blindness

Blindness may be a combination of late planting, late pinching, too much moisture, too rich a soil and too low a temperature at bud initiation. It has been shown that if chrysanthemums are grown in temperatures much below 50° at the time of bud initiation the plants will remain vegetative and will not form flower buds. Blindness is usually associated with those varieties which flower the latter part of November or later. Not all varieties initiate buds at the same date. The late flowering varieties may not set bud until October.

To overcome blind growth keep a night temperature of 55 - 60° from September 15 on until the buds are visible. Likewise run the soil moisture low and do not feed during this period. After the buds are visible it is safe to reduce the temperature to 50°.

When growing chrysanthemums for "Continuous Flowering" it is very important to maintain a temperature of 60° during the period of bud formation or blindness and poor budding will result.

Lack of Color

Pink and bronze varieties will have poor color when high temperatures prevail during the development period. Some of the new varieties retain their color better than the older varieties.

Petal Burn

When blooming chrysanthemums during high temperatures and high light intensity it is advisable to cover the beds with a cheesecloth stretched about 18 inches above the top of the developing blooms. This covering will also help keep dirt off the open blooms. Sunburn sometimes is confused with flower ray blight which is caused by Botrytis. Botrytis is more abundant during periods of high humidity and low temperatures. Ray blight can be controlled by spraying with **Parzate** when the color shows and repeat every 5 days.

SHIPPING FLOWERS

Packing of cut flowers should be carefully studied. The most common error is over-crowding in the shipping boxes. Not securely fastening the blooms in the box will cause bruising of the petals. Cleating or sewing the stems to the box is essential. Cushion the blooms by placing enough padded paper on the bottom of the corrugated box and between the layers of blooms. Wrap the pompons with a loose wrapper. The wrapping paper could have the name of the grower printed on it.

Long distance shipments carry better if the cut flowers are packed dry. Reduction of temperature is accomplished by precooling the packed cut flowers.



Packing Shed with Ample Room

Cultural Pointers

SUPPORTS

With high labor costs, it has become necessary to eliminate some of the labor in supporting standards and disbuds. The old way of supporting with stakes or stringing each plant has given way to the box wire and cross string method of support. Turn-buckles are placed near the end of the bed and this will keep the wires much tighter. Some growers are only using one layer of wire and cross strings and are gradually raising it as the crop grows. Many still use two layers of wires and also raise the top wire as the crop grows.

Pompons are usually supported by the string and wire method similar to that described above. Two layers of wires are necessary to give the pompons good support. When growing out of doors or in cloth houses heavier wire is necessary to give proper support because moisture often collects in the open blooms accounting for the extra weight requiring very strong supports.

SOUTHERN CULTURE

It is true the material presented in this manual is primarily from experiences gathered for the northern part of the United States. Yet many of the pointers are similar for all parts of the country.

We have noted that the early flowering varieties from October 15 to November 1 flower approximately one week later in the southern states while those flowering naturally November 15 to December 1 bloom one week earlier than the dates given in this manual. Last Pinch dates will have to be governed accordingly.

When shading, it has been suggested that the black cloth be placed on the beds late in the evening 7 or 8 P.M. and left on until 8 or 9 A.M. Shading the usual time traps the excessive heat under the cloth and appears to affect foliage and flower buds. Pink and bronze varieties used for shading and early normal production fade to inferior colors.

During the months of July and August little growth may be expected, therefore fertilization should be kept to a minimum. When the nights get cooler in September, October and November, growth is more rapid and the fertilization program should be stepped up accordingly.

The young plants should be illuminated until May 1 to prevent premature flower buds.

The length of day is constantly changing. In Ohio the shortest day has 9 hours of light while the longest day length is 15 hours, in Florida it varies from 10 for the shortest and 14 for the longest. In Ohio the day length will change about 15 minutes each week.

CLOTH HOUSES

Much has been written about the construction and care of the cloth house. It seems that this subject is well taken care of, although there are a few new ideas that should be mentioned.

To grow quality stock it is necessary to use some type of covering such as aster cloth, onion bag or saran. Saran is manufactured by Dow Chemical Co. and is a plastic that will outlive copper screening. There are several colors of this material and the natural colored saran produced better quality pompons than did the green colored material. The amber colored saran allows more light to reach the plants. The plants growing under natural colored saran required twice the amount of water as did those under the green cloth. The important difference is that higher quality stock was produced under the natural colored saran.



Cloth House Made of Natural Colored Saran

Continuous Flowering of Chrysanthemums

Since the advent of daylength and temperature control we have seen chrysanthemum cut flowers on the markets every month since 1946, thanks to our never-tiring research workers in various federal and state institutions. Season has been eliminated and the flowering time can be accurately controlled.

Daylength Control

When Chrysanthemums are grown around the year it is very necessary that we know when to apply shade or light to make the plants respond as we desire. The following schedule will give you the proper dates for lighting and shading for each response group.

YEAR AROUND LIGHTING AND SHADING SCHEDULE

Response Group	Shading to Stop in Fall	Lighting to Start in Fall	Shading to Start in Spring	Lighting to Stop in Spring
7 week	Sept. 1	July 21	Apr. 14	May 26
8 week	Sept. 8	July 28	Apr. 7	May 19
9 week	Sept. 15	Aug. 4	Mar. 31	May 12
10 week	Sept. 22	Aug. 11	Mar. 24	May 5
11 week	Sept. 29	Aug. 18	Mar. 17	Apr. 28
12 week	Oct. 6	Aug. 25	Mar. 10	Apr. 21
13 week	Oct. 13	Sept. 1	Mar. 3	Apr. 14
14 week	Oct. 20	Sept. 8	Feb. 25	Apr. 7

Lighting

The light intensity must be 10 foot candles to prevent bud initiation. For single benches install 100 watt lamps with reflectors spaced at six foot intervals, three feet above the plants. When lighting an entire house the lamps should be installed in the ridge of the house, the number depending on the width of the house. The lights should be turned on at any time during the night.

The additional lighting schedule shows how many hours each evening one must have additional light to prevent bud initiation.

ADDITIONAL LIGHTING SCHEDULE

- 3 Hours during the months of August, September, October, March, April and May.
- 4 Hours during the months of November and February.
- 5 Hours during the months of December and January.

Shading

Use a good durable **Black Cloth** which when applied will reduce the light intensity to 2 foot candles or less. More light intensity than this will result in delayed flowering and unevenness of bloom.

The cloth should be removed at 5 P.M. and removed at 8 A.M. Continue covering each evening on pompons until the latest buds show color and most of the flowers are well developed. For large flowering varieties shading can be discontinued after all flowering buds have attained the diameter of approximately one-half inch.

Be sure that covering is complete on all benches shaded, as any leaks in light will cause uneven spots in the bench at blooming time.

Black cloth should be applied each evening although missing one night a week will give fair results but delayed flowering results when cloth is not applied each evening.



Covering Entire House with Black Sateen

Continuous Flowering of Chrysanthemums

Temperature Control

For bud formation a minimum temperature of 60-65 degrees should be maintained. During the growing period a night temperature near 60 degrees is ideal. When black cloth treatment is started raise the night temperature to 60 until color shows and then drop to 52 to 55 degrees. Excessive high temperatures prohibit the bud development and during seasons of night temperatures above 90 degrees it is suggested that the black cloth be raised after sunset and lowered again in the morning before daylight. This cooler temperature hastens the development of the buds.

When growing a single bench of pompons in a cool house, it has been a problem how to increase the temperature necessary for bud set. A simple method is when applying black cloth allow the cloth to drop to the floor on each side of the bench. Turn on the heat lines under that bench and you will find that a 60 to 65 degree temperature can be maintained.

Interrupted Shading to Control Pompon Sprays

Quality can be obtained when you control the spray formation in pompons. The control requires no more work than normal but does require a little more planning. The result of controlling the spray is a more open head, uniformity, and larger flowers. The color is more intense with most colored varieties.

Two general types of controlled sprays are most useful. 1. Terminal bud set, followed by a period of long days to allow the buds to develop greater size and the individual little flower stems to elongate. The schedule for producing this allows 21 to 28 long days from the pinch to the first short day treatment, 12 short days, 10 long days, then short days to bloom. This schedule requires about 7 days longer for development than if the original short day treatment were continued to flowering. The sprays appear to have been disbudded because the original bud set develops on long stems. It is probably the most desirable of the two types of controlled sprays now recommended for most markets. 2. Branched sprays are produced by giving 4 short days, followed by 15 to 20 long days, then short days to bloom. The first short days produce a crown bud which causes lateral shoots to develop below it. If 15 long days follow the short day treatment, the laterals will have stems 8 to 15 inches long. They form terminal clusters. If you are going to disbud or if your trade likes branched sprays, this is the way to get them uniform.

Interrupted Lighting

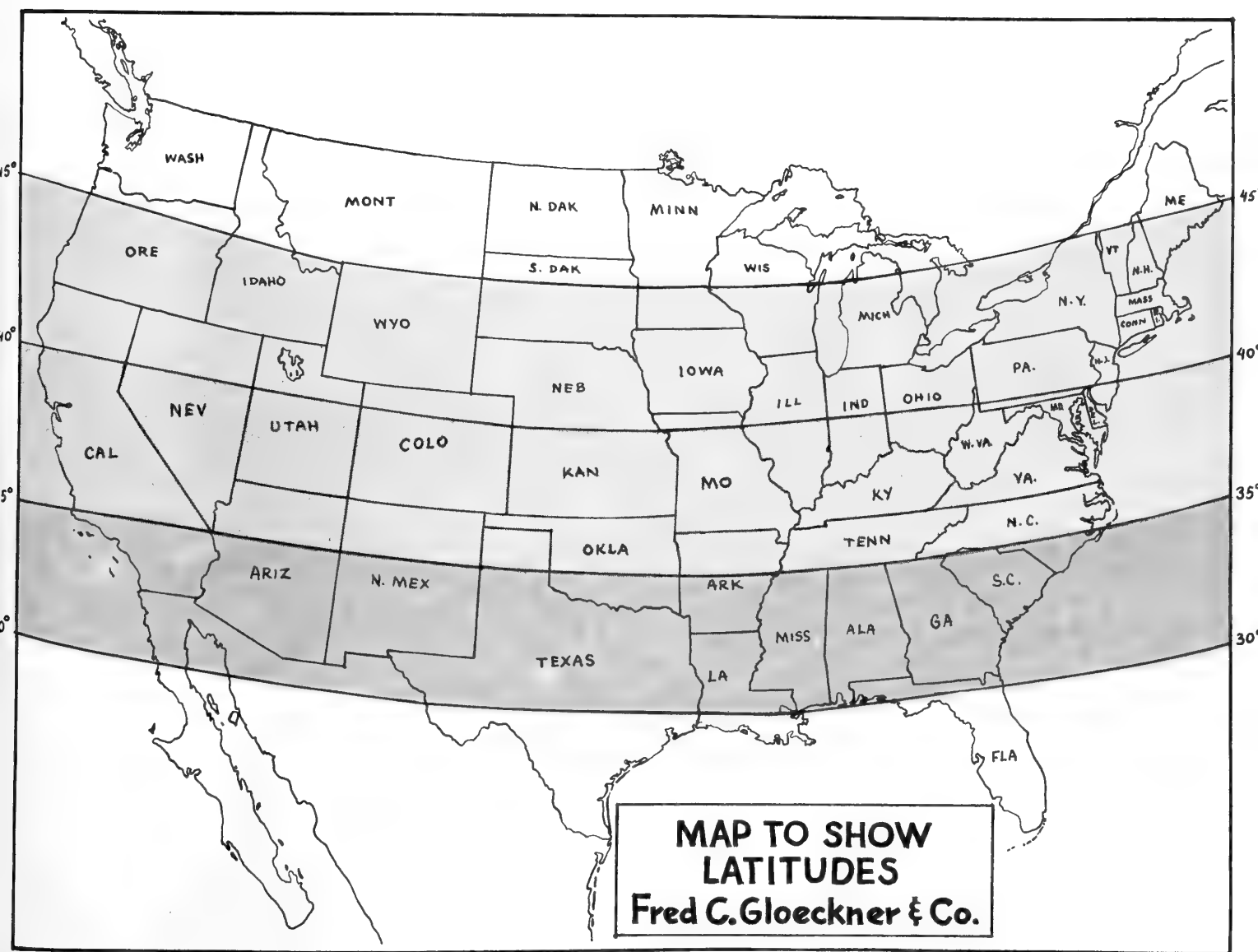
This is very similar to interrupted shading only applied to the continuous flowering schedule. After the plants received their normal lighting period the plants are given 12 short days followed by 10 long days and then short days until flowering. In timing a crop which is to receive an interrupted lighting treatment, we must start the short day treatment earlier than normally, advancing the date by the number of long days which will be used to interrupt the short day period. For example, if the short day treatment were to start on January 15 and continue to flowering. The interrupted lighting treatment is set up for 12 short days followed by 10 long days. Short days would be given the plants from January 3 to 15 followed by 10 long days until January 25 and then short days to flowering. Remember that the total number of long days is the same as given in the schedule.

An interrupted lighting treatment of 12 short days, 10 long days, then short days to flowering has made it possible to improve the quality of pompons by improving the spray formation; now this same treatment can be used on certain standard varieties where quality is poor because of open centers. Best to try either interrupted shading or interrupted lighting on a limited scale until you know how to handle this treatment.

Extensive research on interrupted lighting is now in process to determine the exact number of short days and long days for each response group. We feel that this information is very valuable for those who use the continuous flowering schedule. Our representatives will be informed on the outcome and will discuss it with you.

*Continuous Flowering of Chrysanthemums***LATITUDE TABLE (NORTH)**

- 40-45° Includes: New England, New York, Pennsylvania, Northern Ohio, Northern Indiana, Northern Illinois, Iowa, Minnesota, Wisconsin, Michigan, Washington and Oregon.
- 35-40° Includes: Southern New Jersey, Delaware, Maryland, Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Southern Ohio, Southern Indiana, Southern Illinois, Missouri, Kansas, Colorado, Northern Arkansas, Northern Oklahoma, Southern Nevada, Southern Utah and Central California.
- 30-35° Includes: Southern California, New Mexico, Arizona, Texas (North of Austin), Southern Oklahoma, Southern Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina and Northern Florida.
- 25-30° Includes: Central and Southern Florida, and Southern Texas.



*Chrysanthemum Flowering Schedule***BLOOM JANUARY 12**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Aug. 11	Sept. 1	Sept. 8 —Oct. 6	no	14 Week
	Aug. 11	Sept. 1	Sept. 1 —Oct. 13	no	13 Week
	Aug. 11	Sept. 1	Aug. 25—Oct. 20	no	12 Week
	Aug. 11	Sept. 1	Aug. 18—Oct. 27	no	11 Week
	Aug. 11	Sept. 1	Aug. 11—Nov. 3	no	10 Week
35-40°	Aug. 18	Sept. 8	Sept. 8 —Oct. 6	no	14 Week
	Aug. 18	Sept. 8	Sept. 1 —Oct. 13	no	13 Week
	Aug. 18	Sept. 8	Aug. 25—Oct. 20	no	12 Week
	Aug. 18	Sept. 8	Aug. 18—Oct. 27	no	11 Week
30-45°	Aug. 18	Sept. 15	Sept. 1 —Oct. 13	no	13 Week
	Aug. 18	Sept. 15	Aug. 25—Oct. 20	no	12 Week
	Aug. 18	Sept. 15	Aug. 18—Oct. 27	no	11 Week
25-30°	Aug. 25	Sept. 22	Aug. 25—Oct. 20	no	12 Week
	Aug. 25	Sept. 22	Aug. 25—Oct. 27	no	11 Week
	Aug. 25	Sept. 22	Aug. 25—Nov. 3	no	10 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	14 Week	13 Week	12 Week	11 Week	10 Week
WHITE	S		Chattanooga	Mefo	Ind. White
	P	Snowcrest Silversmith Snowcap Satellite	Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount	Shasta Dynamo Little America Matchless
YELLOW	S		Gold. Pearson Yel. Chat'n'ga	Yellow Mefo Harvester	Yellow Queen Ind. Yellow
	P	Yel. Snowcrest Shamrock Vibrant Sunrise Siren	Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike Bojangles	Brigadoon Crescendo Yellow Shasta
BRONZE & RED	S		Oak Leaf		Ind. Bronze
	P	Br. Riviera Topaz Crist. Greeting Merrymaker Poinsettia	Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Br. Masterpiece Paragon Red Rust
PINK	S			Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen
	P	Riviera Rosalind Medallion	Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial

S—Standard

P—Pompons

*Chrysanthemum Flowering Schedule***BLOOM JANUARY 26**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Aug. 18	Sept. 15	Sept. 8 —Oct. 20	no	14 Week
	Aug. 18	Sept. 15	Sept. 1 —Oct. 27	no	13 Week
	Aug. 18	Sept. 15	Aug. 25—Nov. 3	no	12 Week
	Aug. 18	Sept. 15	Aug. 18—Nov. 10	no	11 Week
	Aug. 18	Sept. 15	Aug. 18—Nov. 17	no	10 Week
35-40°	Aug. 25	Sept. 22	Sept. 8 —Oct. 20	no	14 Week
	Aug. 25	Sept. 22	Sept. 1 —Oct. 27	no	13 Week
	Aug. 25	Sept. 22	Aug. 25—Nov. 3	no	12 Week
	Aug. 25	Sept. 22	Aug. 25—Nov. 10	no	11 Week
30-35°	Sept. 1	Sept. 29	Sept. 1 —Oct. 27	no	13 Week
	Sept. 1	Sept. 29	Sept. 1 —Nov. 3	no	12 Week
	Sept. 1	Sept. 29	Sept. 1 —Nov. 10	no	11 Week
	Sept. 1	Sept. 29	Sept. 1 —Nov. 17	no	10 Week
25-30°	Sept. 8	Oct. 6	Sept. 8 —Nov. 3	no	12 Week
	Sept. 8	Oct. 6	Sept. 8 —Nov. 10	no	11 Week
	Sept. 8	Oct. 6	Sept. 8 —Nov. 17	no	10 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	14 Week	13 Week	12 Week	11 Week	10 Week
WHITE	S		Chattanooga	Mefo	Ind. White
	P	Silversmith Snowcap Satellite	Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount	Shasta Dynamo Little America Matchless
YELLOW	S		Golden Pearson Yel. Chattan'ga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen
	P	Yel. Snowcrest Shamrock Vibrant Sunrise Siren	Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike Bojangles	Brigadoon Crescendo Yellow Shasta
BRONZE & RED	S		Oak Leaf		Ind. Bronze
	P	Br. Riviera Topaz Xmas. Greeting Merrymaker Poinsettia	Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Br. Masterpiete Paragon Red Rust
PINK	S			Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen
	P	Riviera Rosalind Medallion	Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial

*Chrysanthemum Flowering Schedule***BLOOM FEBRUARY 9**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Sept. 1	Sept. 29	Sept. 8—Nov. 3	no	14 Week
	Sept. 1	Sept. 29	Sept. 1—Nov. 10	no	13 Week
	Sept. 1	Sept. 29	Sept. 1—Nov. 17	no	12 Week
	Sept. 1	Sept. 29	Sept. 1—Nov. 24	no	11 Week
	Sept. 1	Sept. 29	Sept. 1—Dec. 1	no	10 Week
35-40°	Sept. 8	Oct. 6	Sept. 8—Nov. 10	no	13 Week
	Sept. 8	Oct. 6	Sept. 8—Nov. 17	no	12 Week
	Sept. 8	Oct. 6	Sept. 8—Nov. 24	no	11 Week
	Sept. 8	Oct. 6	Sept. 8—Dec. 1	no	10 Week
30-35°	Sept. 15	Oct. 13	Sept. 15—Nov. 10	no	13 Week
	Sept. 15	Oct. 13	Sept. 15—Nov. 17	no	12 Week
	Sept. 15	Oct. 13	Sept. 15—Nov. 24	no	11 Week
	Sept. 15	Oct. 13	Sept. 15—Dec. 1	no	10 Week
25-30°	Sept. 22	Oct. 20	Sept. 22—Nov. 17	no	12 Week
	Sept. 22	Oct. 20	Sept. 22—Nov. 24	no	11 Week
	Sept. 22	Oct. 20	Sept. 22—Dec. 1	no	10 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	14 Week	13 Week	12 Week	11 Week	10 Week
WHITE	S		Chattanooga	Mefo	Ind. White
	P	Snowcrest Silversmith Snowcap Satellite	Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount	Shasta Dynamo Little America Matchless
YELLOW	S		Golden Pearson Yel. Chattan'ga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen
	P	Yel. Snowcrest Shamrock Vibrant Sunrise	Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta
BRONZE & RED	S		Oak Leaf		Ind. Bronze
	P	Br. Riviera Topaz Xmas. Greeting Poinsettia Merrymaker	Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Br. Masterpiece Paragon Red Rust
PINK	S			Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen
	P	Riviera Rosalind Medallion	Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial

*Chrysanthemum Flowering Schedule***BLOOM FEBRUARY 23**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Sept. 15	Oct. 13	Sept. 15—Nov. 24	no	13 Week
	Sept. 15	Oct. 13	Sept. 15—Dec. 1	no	12 Week
	Sept. 15	Oct. 13	Sept. 15—Dec. 8	no	11 Week
	Sept. 15	Oct. 13	Sept. 15—Dec. 15	no	10 Week
35-40°	Sept. 22	Oct. 20	Sept. 22—Nov. 24	no	13 Week
	Sept. 22	Oct. 20	Sept. 22—Dec. 1	no	12 Week
	Sept. 22	Oct. 20	Sept. 22—Dec. 8	no	11 Week
	Sept. 22	Oct. 20	Sept. 22—Dec. 15	no	10 Week
30-35°	Sept. 29	Oct. 27	Sept. 29—Nov. 24	no	13 Week
	Sept. 29	Oct. 27	Sept. 29—Dec. 1	no	12 Week
	Sept. 29	Oct. 27	Sept. 29—Dec. 8	no	11 Week
	Sept. 29	Oct. 27	Sept. 29—Dec. 15	no	10 Week
25-30°	Oct. 6	Nov. 3	Oct. 6 —Dec. 1	no	12 Week
	Oct. 6	Nov. 3	Oct. 6 —Dec. 8	no	11 Week
	Oct. 6	Nov. 3	Oct. 6 —Dec. 15	no	10 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	13 Week	12 Week	11 Week	10 Week
WHITE	S	Chattanooga	Mefo	Ind. White Jean Elizabeth
	P Cameo Acclaim Cotillion Snowdrop Snow Queen	Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount	Shasta Dynamo Little America Matchless
YELLOW	S	Golden Pearson Yel. Chattanooga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen
	P Brandywine Yel. Cameo Goldtone Corsair	Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta
BRONZE & RED	S	Oak Leaf		Ind. Bronze
	P Harlequin Holiday Xmas. Star Br. Minstrel	Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Dk. Br. Masterpiece Paragon Red Rust
PINK	S		Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen
	P Debutante Minstrel	Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial

*Chrysanthemum Flowering Schedule***BLOOM MARCH 9**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Sept. 29	Oct. 27	Sept. 29—Dec. 15	no	12 Week
	Sept. 29	Oct. 27	Sept. 29—Dec. 22	no	11 Week
	Sept. 29	Oct. 27	Sept. 29—Dec. 29	no	10 Week
35-40°	Oct. 6	Nov. 3	Oct. 6—Dec. 15	no	12 Week
	Oct. 6	Nov. 3	Oct. 6 —Dec. 22	no	11 Week
	Oct. 6	Nov. 3	Oct. 6 —Dec. 29	no	10 Week
30-35°	Oct. 13	Nov. 10	Oct. 13—Dec. 15	no	12 Week
	Oct. 13	Nov. 10	Oct. 13—Dec. 22	no	11 Week
	Oct. 13	Nov. 10	Oct. 13—Dec. 29	no	10 Week
25-30°	Oct. 20	Nov. 17	Oct. 20—Dec. 22	no	11 Week
	Oct. 20	Nov. 17	Oct. 20—Dec. 29	no	10 Week
	Oct. 20	Nov. 17	Oct. 20—Jan. 5	no	9 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	12 Week	11 Week	10 Week	9 Week
WHITE	S Chattanooga	Mefo	Ind. White Jean Elizabeth	Queen's Lace
	P Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount Crystal Beauty	Shasta Dynamo Little America Matchless	Popcorn Keepsake Arcadia Hale Sea Gull
YELLOW	S Golden Pearson Yel. Chattanooga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen	Yellow Lace Good News
	P Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta	Golden Herald Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright
BRONZE & RED	S Oak Leaf		Ind. Bronze	Detroit News
	P Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Dk. Br. Mast'p'ce Paragon Red Rust	Buckskin Seneca Firefly Buccaneer Red Seneca
PINK	S	Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden
	P Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial	Reward October Pink Ballerina

*Chrysanthemum Flowering Schedule***BLOOM MARCH 23**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Oct. 13	Nov. 10	Oct. 13—Dec. 29	no	12 Week
	Oct. 13	Nov. 10	Oct. 13—Jan. 5	no	11 Week
	Oct. 13	Nov. 10	Oct. 13—Jan. 12	no	10 Week
35-40°	Oct. 20	Nov. 17	Oct. 20—Dec. 20	no	12 Week
	Oct. 20	Nov. 17	Oct. 20—Jan. 5	no	11 Week
	Oct. 20	Nov. 17	Oct. 20—Jan. 12	no	10 Week
	Oct. 20	Nov. 17	Oct. 20—Jan. 19	no	9 Week
30-35°	Oct. 27	Nov. 24	Oct. 27—Dec. 29	no	12 Week
	Oct. 27	Nov. 24	Oct. 27—Jan. 5	no	11 Week
	Oct. 27	Nov. 24	Oct. 27—Jan. 12	no	10 Week
	Oct. 27	Nov. 24	Oct. 27—Jan. 19	no	9 Week
25-30°	Nov. 10	Dec. 8	Nov. 10—Jan. 5	no	11 Week
	Nov. 10	Dec. 8	Nov. 10—Jan. 12	no	10 Week
	Nov. 10	Dec. 8	Nov. 10—Jan. 19	no	9 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	12 Week	11 Week	10 Week	9 Week
WHITE	S Chattanooga	Mefo	Ind. White Jean Elizabeth	Queen's Lace
	P Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount Crystal Beauty	Shasta Dynamo Little America Matchless	Popcorn Keepsake Arcadia Halo Sea Gull
YELLOW	S Golden Pearson Yel. Chattanooga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen	Yellow Lace Good News
	P Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta	Golden Herald Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright
BRONZE & RED	S Oak Leaf		Ind. Bronze	Detroit News
	P Indian Head Amberina Galaxy	Thelma Bourbon Festival	Beauregard Rubicon Dk. Br. Mast'p'ce Paragon Red Rust	Buckskin Seneca Firefly Buccaneer Red Seneca
PINK	S	Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden
	P Princess Heritage	Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial	Reward October Pink Ballerina

*Chrysanthemum Flowering Schedule***BLOOM APRIL 6**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Nov. 3	Dec. 1	Nov. 3—Jan. 19	no	11 Week
	Nov. 3	Dec. 1	Nov. 3—Jan. 26	no	10 Week
	Nov. 3	Dec. 1	Nov. 3—Feb. 2	no	9 Week
35-40°	Nov. 10	Dec. 8	Nov. 10—Jan. 19	no	11 Week
	Nov. 10	Dec. 8	Nov. 10—Jan. 26	no	10 Week
	Nov. 10	Dec. 8	Nov. 10—Feb. 2	no	9 Week
30-35°	Nov. 17	Dec. 15	Nov. 17—Jan. 19	no	11 Week
	Nov. 17	Dec. 15	Nov. 17—Jan. 26	no	10 Week
	Nov. 17	Dec. 15	Nov. 17—Feb. 2	no	9 Week
	Nov. 17	Dec. 15	Nov. 17—Feb. 9	no	8 Week
25-30°	Nov. 24	Dec. 29	Nov. 24—Jan. 26	no	10 Week
	Nov. 24	Dec. 29	Nov. 24—Feb. 2	no	9 Week
	Nov. 24	Dec. 29	Nov. 24—Feb. 9	no	8 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	11 Week	10 Week	9 Week	8 Week
WHITE	S Mefo	Ind. White Jean Elizabeth	Queen's Lace	Silver Sheen
	P Sculpture Eskimo Priscilla Paramount Crystal Beauty	Shasta Dynamo Little America Matchless	Popcorn Keepsake Songster Halo Sea Gull	Norona Pristine
YELLOW	S Yellow Mefo Harvester	Ind. Yellow Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta	Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright	
BRONZE & RED	S	Ind. Bronze	Detroit News	
	P Thelma Bourbon Festival	Beauregard Rubicon Dk. Br. Mast'p'ce Paragon Red Rust	Buckskin Seneca Red Seneca Firefly Buccaneer	James Stewart
PINK	S Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden	
	P Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial	Reward October Pink Ballerina	Mary McArthur

*Chrysanthemum Flowering Schedule***BLOOM APRIL 20**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Nov. 17	Dec. 22	Nov. 17—Feb. 2	Mar. 17	11 Week
	Nov. 17	Dec. 22	Nov. 17—Feb. 9	Mar. 24	10 Week
	Nov. 17	Dec. 22	Nov. 17—Feb. 16	Mar. 31	9 Week
	Nov. 17	Dec. 22	Nov. 17—Feb. 23	no	8 Week
35-40°	Nov. 24	Dec. 29	Nov. 24—Feb. 2	Mar. 17	11 Week
	Nov. 24	Dec. 29	Nov. 24—Feb. 9	Mar. 24	10 Week
	Nov. 24	Dec. 29	Nov. 24—Feb. 16	Mar. 31	9 Week
	Nov. 24	Dec. 29	Nov. 24—Feb. 23	no	8 Week
30-35°	Dec. 1	Jan. 7	Dec. 1—Feb. 9	Mar. 24	10 Week
	Dec. 1	Jan. 7	Dec. 1—Feb. 16	Mar. 31	9 Week
	Dec. 1	Jan. 7	Dec. 1—Feb. 23	April 7	8 Week
25-30°	Dec. 15	Jan. 21	Dec. 15—Feb. 9	Mar. 24	10 Week
	Dec. 15	Jan. 21	Dec. 15—Feb. 16	Mar. 31	9 Week
	Dec. 15	Jan. 21	Dec. 15—Feb. 23	April 7	8 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	11 Week	10 Week	9 Week	8 Week
WHITE	S Mefo	Ind. White Jean Elizabeth	Queen's Lace	Silver Sheen
	P Sculpture Eskimo Priscilla Paramount Crystal Beauty	Shasta Dynamo Little America Matchless	Popcorn Keepsake Songster Halo Sea Gull	Norona Pristine
YELLOW	S Yellow Mefo Harvester	Ind. Yellow Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Yellow Shasta	Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright	
BRONZE & RED	S	Ind. Bronze	Detroit News	
	P Thelma Bourbon Festival	Beauregard Rubicon Dk. Br. Mast'p'ce Paragon Red Dust	Buckskin Seneca Red Seneca Firefly Buccaneer	James Stewart
PINK	S Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden	
	P Mermaid Brocade Grand Slam Pinky	Soprano Linda Lou Pandora Memorial	Reward October Pin Ballerina	Mary McArthur

*Chrysanthemum Flowering Schedule***BLOOM MAY 5**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Dec. 10	Jan. 14	Dec. 10—Feb. 25	Mar. 24	10 Week
	Dec. 10	Jan. 14	Dec. 10—Mar. 3	Mar. 31	9 Week
	Dec. 10	Jan. 14	Dec. 10—Mar. 10	April 7	8 Week
35-40°	Dec. 17	Jan. 21	Dec. 17—Feb. 25	Mar. 24	10 Week
	Dec. 17	Jan. 21	Dec. 17—Mar. 3	Mar. 31	9 Week
	Dec. 17	Jan. 21	Dec. 17—Mar. 10	April 7	8 Week
30-35°	Dec. 24	Jan. 28	Dec. 24—Feb. 25	Mar. 24	10 Week
	Dec. 24	Jan. 28	Dec. 24—Mar. 3	Mar. 31	9 Week
	Dec. 24	Jan. 28	Dec. 24—Mar. 10	April 7	8 Week
25-30°	Dec. 31	Feb. 4	Dec. 31—Feb. 25	Mar. 24	10 Week
	Dec. 31	Feb. 4	Dec. 31—Mar. 3	Mar. 31	9 Week
	Dec. 31	Feb. 4	Dec. 31—Mar. 10	April 7	8 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	10 Week	9 Week	8 Week
WHITE	S Ind. White Jean Elizabeth	Queen's Lace	Silver Sheen
	P Madonna Shasta Dynamo Little America Matchless	Popcorn Keepsake Pinocchio Songster Halo Sea Gull	Norona Pristine
YELLOW	S Ind. Yellow Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Brigadoon Crescendo Yel. Shasta	Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright	
BRONZE & RED	S Ind. Bronze	Detroit News	
	P Beauregard Rubicon Dk. Br. Mast'p'ce Paragon	Buckskin Red Seneca Firefly Buccaneer	James Stewart
PINK	S Ind. Pink Dk. Orchid Queen	Mary Garden	
	P Soprano Linda Lou Pandora	Reward Ballerina	Mary McArthur

*Chrysanthemum Flowering Schedule***BLOOM MAY 19**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
40-45°	Dec. 29	Feb. 4	Dec. 29—Mar. 10	Mar. 24	10 Week
	Dec. 29	Feb. 4	Dec. 29—Mar. 17	Mar. 31	9 Week
	Dec. 29	Feb. 4	Dec. 29—Mar. 24	Apr. 7	8 Week
35-40°	Jan. 7	Feb. 11	Jan. 7—Mar. 10	Mar. 24	10 Week
	Jan. 7	Feb. 11	Jan. 7—Mar. 17	Mar. 31	9 Week
	Jan. 7	Feb. 11	Jan. 7—Mar. 24	Apr. 7	8 Week
25-35°	Jan. 14	Feb. 18	Jan. 14—Mar. 10	Mar. 24	10 Week
	Jan. 14	Feb. 18	Jan. 14—Mar. 17	Mar. 31	9 Week
	Jan. 14	Feb. 18	Jan. 14—Mar. 24	Apr. 7	8 Week

BLOOM JUNE 9

40-45°	Jan. 28	Mar. 3	Jan. 28—Mar. 31	Mar. 31	10 Week
	Jan. 28	Mar. 3	Jan. 28—Apr. 7	Apr. 7	9 Week
	Jan. 28	Mar. 3	Jan. 28—Apr. 14	Apr. 14	8 Week
25-40°	Feb. 4	Mar. 10	Feb. 4—Mar. 31	Mar. 31	10 Week
	Feb. 4	Mar. 10	Feb. 4—Apr. 7	Apr. 7	9 Week
	Feb. 4	Mar. 10	Feb. 4—Apr. 14	Apr. 14	8 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	10 Week	9 Week	8 Week
WHITE	S Ind. White Jean Elizabeth	Queen's Lace	Silver Sheen
	P Madonna Shasta Dynamo Little America Matchless	Popcorn Keepsake Pinocchio Songster Halo Sea Gull	Norona Pristine
YELLOW	S Ind. Yellow Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Brigadoon Crescendo Yel. Shasta	Gold Coast Sunup Yel. Arcadia Mary L. Hall Starbright	
BRONZE & RED	S Ind. Bronze	Detroit News	
	P Beauregard Rubicon Dk. Br. Mast'p'ce Paragon	Buckskin Red Seneca Firefly Buccaneer	James Stewart
PINK	S Ind. Pink Dk. Orchid Queen	Mary Garden	
	P Soprano Linda Lou Pandora	Reward Ballerina	Mary McArthur

*Chrysanthemum Flowering Schedule***BLOOM JUNE 23**

Latitude	Plant	Pinch*	Lighting Period	Start Shade	Response Group
25-45°	Feb. 25	Mar. 24	Feb. 25—Apr. 14	Apr. 14	10 Week
	Feb. 25	Mar. 24	Feb. 25—Apr. 21	Apr. 21	9 Week
	Feb. 25	Mar. 24	Feb. 25—Apr. 28	Apr. 28	8 Week

BLOOM JULY 14

25-45°	Mar. 17	Apr. 14	Mar. 17—May 5	May 5	10 Week
	Mar. 17	Apr. 14	Mar. 17—May 12	May 12	9 Week
	Mar. 17	Apr. 14	Mar. 17—May 19	May 19	8 Week

BLOOM JULY 28

25-45°	Mar. 31	Apr. 28	Mar. 31—May 5	May 19	10 Week
	Mar. 31	Apr. 28	Mar. 31—May 12	May 26	9 Week
	Mar. 31	Apr. 28	Mar. 31—May 19	June 2	8 Week

BLOOM AUGUST 11

25-45°	Apr. 14	May 12	Apr. 14—May 5	June 2	10 Week
	Apr. 14	May 12	Apr. 14—May 12	June 9	9 Week
	Apr. 14	May 12	Apr. 14—May 19	June 16	8 Week

BLOOM AUGUST 25

25-45°	Apr. 28	May 26	No light necessary	June 16	10 Week
	Apr. 28	May 26	No light necessary	June 23	9 Week
	Apr. 28	May 26	No light necessary	June 30	8 Week

*For No Pinch Method: Plant and Light on Pinch Date

VARIETIES IN RESPONSE GROUPS

	10 Week	9 Week	8 Week
WHITE	S Jean Elizabeth Betsy Ross	Queen's Lace	Silver Sheen
	P Madonna Shasta Dynamo Little America Matchless	Popcorn Keepsake Pinocchio Songster Halo (Ghs.)	Norona Pristine
YELLOW	S Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Brigadoon Crescendo Yel. Shasta	Gold Coast Sunup Yel. Arcadia Starbright	
BRONZE	P Beauregard Rubicon	Buckskin	James Stewart
PINK	P Dk. Linda Lou	Reward	

*Chrysanthemum Flowering Schedule***BLOOM SEPTEMBER 8**

Latitude	Plant	Pinch	Start Shade	Response Group
25-45°	May 19	June 9	June 30	10 Week
	May 19	June 9	July 7	9 Week
	May 19	June 9	July 14	8 Week

BLOOM SEPTEMBER 22

40-45°	May 26	June 16	July 14	10 Week
	May 26	June 16	July 21	9 Week
	May 26	June 16	July 28	8 Week
25-40°	June 2	June 23	July 14	10 Week
	June 2	June 23	July 21	9 Week
	June 2	June 23	July 28	8 Week

VARIETIES IN RESPONSE GROUPS

	10 Week	9 Week	8 Week
WHITE	S Ind. White Jean Elizabeth Betsy Ross	Queen's Lace	Silver Sheen
	P Madonna Shasta Dynamo Little America Matchless Encore	Popcorn Keepsake Pinocchio Songster Halo (Ghs.) Sea Gull	Norona Pristine
YELLOW	S Yellow Queen Ind. Yellow	Yellow Lace Good News	Blazing Gold
	P Brigadoon Crescendo Pixie Yellow Shasta	Gold Coast Yellow Dot Sunup Mary L. Hall Sch. Yel. Daisy Sunray	
BRONZE & RED	S Ind. Bronze Nomago	Detroit News	
	P Beauregard Cassandra Red Rust Rubicon Bittersweet Paragon Magician Dk. Br. Masterp'ce	Buckskin Red Seneca Firefly Buccaneer Navaho Red Daisy	Robinhue Rajah James Stewart
PINK	S Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden	
	P Dreamboat Dk. Bulkeley Pandora Soprano Dk. Linda Lou Masterpiece Memorial	Reward Pink Dot Jessie Ballerina	Carolyn Yosick Mary McArthur

Gloeckner

CHRYSANTHEMUM CUTTINGS

*Chrysanthemum Flowering Schedule***BLOOM SEPTEMBER 29**

Latitude	Plant	Pinch	Start Shade	Response Group
40-45°	June 2	June 23	July 14	11 Week
	June 2	June 23	July 21	10 Week
	June 2	June 23	July 28	9 Week
	June 2	June 23	Aug. 4	8 Week
25-40°	June 9	June 30	July 14	11 Week
	June 9	June 30	July 21	10 Week
	June 9	June 30	July 28	9 Week
	June 9	June 30	Aug. 4	8 Week

BLOOM OCTOBER 13

40-45°	June 9	June 30	July 28	11 Week
	June 9	June 30	Aug. 4	10 Week
	June 9	June 30	Aug. 11	9 Week
	June 9	June 30	Aug. 18	8 Week
25-40°	June 23	July 14	July 28	11 Week
	June 23	July 14	Aug. 4	10 Week
	June 23	July 14	Aug. 11	9 Week
	June 23	July 14	Aug. 18	8 Week

VARIETIES IN RESPONSE GROUPS

	11 Week	10 Week	9 Week	8 Week
WHITE	S Mefo	Ind. White Betsy Ross Jean Elizabeth	Queen's Lace	Silver Sheen
	P Sculpture Eskimo Priscilla Paramount	Madonna Shasta Dynamo Little America Matchless Encore	Wh. Popcorn Keepsake Songster Halo (Ghs.) Sea Gull	Norona Pristine
YELLOW	S Yellow Mefo	Ind. Yellow Yellow Queen	Yellow Lace Good News	Blazing Gold
	P Thorobred Lollipop Pippin Klondike Bojangles	Brigadoon Crescendo Pixie Yellow Shasta	Gold Coast Yellow Dot Sunup Mary L. Hall Sch. Yel. Daisy Sunray	
BRONZE & RED	S	Ind. Bronze Nomago	Detroit News	
	P Thelma Rusticon Carousel Festival Br. Minuet	Beauregard Cassandra Red Rust Rubicon Bittersweet Magician Dk. Br. Masterp'ce Paragon	Buckskin Red Seneca Firefly Buccaneer Navaho Red Daisy	Robinhue Rajah James Stewart
PINK	S Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden	
	P Mermaid Brocade Grand Slam Pinky Minuet	Dreamboat Dk. Bulkeley Pandora Soprano Dk. Linda Lou Masterpiece Memorial	Reward Pink Dot Jessie Ballerina	Carolyn Yosick Mary McArthur

*Chrysanthemum Flowering Schedule***BLOOM OCTOBER 27**

Latitude	Plant	Pinch	Start Shading	Response Group
40-45°	June 23	July 14	Aug. 4	12 Week
	June 23	July 14	Aug. 11	11 Week
	June 23	July 14	Aug. 18	10 Week
25-40°	June 30	July 21	Aug. 4	12 Week
	June 30	July 21	Aug. 11	11 Week
	June 30	July 21	Aug. 18	10 Week

VARIETIES IN RESPONSE GROUPS

		12 Week	11 Week	10 Week
WHITE	S	Chattanooga	Mefo	Betsy Ross Ind. White Jean Elizabeth
	P	Belray Fortune Monarch	Sculpture Eskimo Priscilla Paramount Crystal Beauty	Madonna Shasta Dynamo Little America Matchless Encore
YELLOW	S	Golden Pearson Yel. Chattanooga	Yellow Mefo Harvester	Ind. Yellow Yellow Queen
	P	Goldenrod Highlander Omega Nosegay	Thorobred Lollipop Pippin Klondike	Brigadoon Crescendo Pixie Yellow Shasta
BRONZE & RED	S	Oak Leaf		Ind. Bronze Nomago
	P	Indian Head Amberina Galaxy	Thelma Bourbon Rusticon Carousel Festival Br. Minuet	Beauregard Cassandra Red Rust Rubicon Bittersweet Magician Dk. Br. Masterpiece Paragon
PINK	S		Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen
	P	Princess Heritage	Mermaid Brocade Grand Slam Pinky Minuet	Dreamboat Dk. Bulkeley Pandora Soprano Dk. Linda Lou Masterpiece Memorial

*Chrysanthemum Flowering Schedule***BLOOM NOVEMBER 24**

Latitude	Plant	Pinch	Lighting Period	Start Shade	Response Group
40-45°	July 7	July 28	Aug. 11—Sept. 15	no	10 Week
	July 7	July 28	Aug. 4—Sept. 22	no	9 Week
35-40°	July 14	Aug. 4	Aug. 11—Sept. 15	no	10 Week
	July 14	Aug. 4	Aug. 4—Sept. 22	no	9 Week
25-35°	July 21	Aug. 11	Aug. 11—Sept. 15	no	10 Week
	July 21	Aug. 11	Aug. 4—Sept. 22	no	9 Week

BLOOM DECEMBER 8

40-45°	July 21	Aug. 11	Aug. 25—Sept. 15	no	12 Week
	July 21	Aug. 11	Aug. 18—Sept. 22	no	11 Week
	July 21	Aug. 11	Aug. 11—Sept. 29	no	10 Week
	July 21	Aug. 11	Aug. 4—Oct. 6	no	9 Week
30-40°	July 28	Aug. 18	Aug. 25—Sept. 15	no	12 Week
	July 28	Aug. 18	Aug. 18—Sept. 22	no	11 Week
	July 28	Aug. 18	Aug. 11—Sept. 29	no	10 Week
	July 28	Aug. 18	Aug. 4—Oct. 6	no	9 Week
25-30°	Aug. 4	Aug. 25	Aug. 25—Sept. 15	no	12 Week
	Aug. 4	Aug. 25	Aug. 18—Sept. 22	no	11 Week
	Aug. 4	Aug. 25	Aug. 11—Sept. 29	no	10 Week
	Aug. 4	Aug. 25	Aug. 4—Oct. 6	no	9 Week

BLOOM DECEMBER 22

40-45°	July 28	Aug. 18	Aug. 25—Sept. 29	no	12 Week
	July 28	Aug. 18	Aug. 18—Oct. 6	no	11 Week
	July 28	Aug. 18	Aug. 11—Oct. 13	no	10 Week
	July 28	Aug. 18	Aug. 4—Oct. 20	no	9 Week
35-40°	Aug. 4	Aug. 25	Aug. 25—Sept. 29	no	12 Week
	Aug. 4	Aug. 25	Aug. 18—Oct. 6	no	11 Week
	Aug. 4	Aug. 25	Aug. 11—Oct. 13	no	10 Week
	Aug. 4	Aug. 25	Aug. 4—Oct. 20	no	9 Week
25-35°	Aug. 18	Sept. 8	Aug. 25—Sept. 29	no	12 Week
	Aug. 18	Sept. 8	Aug. 18—Oct. 6	no	11 Week
	Aug. 18	Sept. 8	Aug. 18—Oct. 13	no	10 Week
	Aug. 18	Sept. 8	Aug. 18—Oct. 20	no	9 Week

VARIETIES IN RESPONSE GROUPS

	12 Week	11 Week	10 Week	9 Week
WHITE	Chattanooga	Mefo	Ind. White Jean Elizabeth	Queen's Lace
YELLOW	Yel. Chattanooga Golden Pearson	Yellow Mefo Harvester	Ind. Yellow Yellow Queen	Yellow Lace
BRONZE	Oak Leaf		Ind. Bronze Nomago	
PINK		Thanks. Pink	Ind. Pink Dk. Orchid Queen Orchid Queen	Mary Garden

Chrysanthemum Pot Plant Culture

Well-grown short chrysanthemum potted plants have been finding a ready market. To grow short, stocky plants it is necessary to follow definite cultural directions. We offer the following suggestions for your consideration:

Soil

A good fibrous silt loam directly from the field to which one-quarter by volume of well-rotted manure has been added, plus an application of super phosphate will give excellent results. Steam sterilization will eliminate all weed seeds and increase the granulation of the soil. Wait seven days before planting rooted cuttings into steam sterilized soil.

Temperature

Always grow in a 60° house as lower temperature will cause blindness. After color shows, finish in a cooler temperature if possible, this would be advisable for Easter or Mother's Day crop.

Planting and Pinching

Pot, Pinch and Short Day. Plant 5 or 6 cuttings in a 6-inch pot, pinch and give short day treatment the same day. This method is recommended for potted plants from January to June. It is a very rapid way to grow potted plants out of season.

Blazing Gold will bloom in 8 weeks, Granite State requires 9 weeks while Queen of Pinks and Little America will bloom in 10 weeks from the time short day treatment is started.

We suggest that those plants that are planted between October 15 and January 15 be given 7 to 14 days of additional light before they are pinched and given short day treatment. This additional light will stretch the plants and make a more desirable height potted plant when in bloom.

Single Pinch Method. Plant four or favorably five cuttings in a 6-inch pot. Allow the plants to grow 14 days and then pinch, giving short day treatment the day pinch was made. If this method is used between August 10 to April 15, the 14 days prior to pinching should have additional light. Good quality plants are produced and it will shorten the time necessary to produce a finished plant by three or four weeks as compared with a two pinch plant.

Two Pinch Method. Most common method of growing early shaded pot plants today. Plant three or four cuttings in a 6-inch pot. Pinch the plants the first time 14 days after planting and wait 21 days and pinch the second time. Short day treatment should start at the time of the second pinch.

Three Pinch Method. This method is used extensively where plants are flowered naturally without use of black cloth covering. Plant similarly to two pinch method and make the first and second pinches in the same way. The third and last pinch should be made on dates suggested under the "Last Pinch" heading in the pot plant variety list. Larger plants result when pinched three times.

Modified Three Pinch Method. Plant three or four cuttings to a 6-inch pot. Pinch the following day after planting. Pinch second time 14 to 21 days later, and the third pinch should be 21 days after the second pinching. The modified method can be carried out as fast as the regular two pinch method, the only difference is a larger plant with more blooms.

Last pinch has generally been given the day black cloth treatment is to start. If you are troubled with plants that are too tall, it is suggested that you "last pinch" 5 or maybe 10 days after the shading program was started. Varieties such as Yellow Lace, Queen's Lace should always be pinched for the last time 10 days after starting the black cloth treatment.



House of Bonaffon Deluxe Timed for Thanksgiving Day

Chrysanthemum Pot Plant Culture

Watering and Humidity

After planting, water thoroughly to set the soil around the roots. Repeat this type of watering when the soil gets on the dry side. Organic matter in the soil will facilitate watering and will tend to avoid extreme fluctuations in moisture supply. Overwatering will rot the roots and cause a yellowing of the foliage. For best results grow all potted chrysanthemums under glass. Keep humidity in house by wetting down benches and walks with an occasional syring over the plants.

Fertilizing

The foliage should retain a bright green luster throughout the life of the plant, and the lower leaves should never be allowed to lose their color and turn to a light green due to low fertility. A strong well grown pot plant is a well fed plant. Pot plants should be fed more often than those grown in a bench as constant leaching will lower the nutrient level in pots faster than under bench culture. Several light feedings should be made with a complete fertilizer such as Electra. This can safely be used at the rate of 1 teaspoonful per 6" pot. Liquid fertilizers are also very effective. It has been found that more frequent feedings of a weak nutrient solution is better than fewer heavy feedings. Last feeding should be made when the buds are forming.

Diseases and Insects

A regular spraying or fumigation with **Parathion** will control red spider, thrip, aphid and leaf tyer, the most troublesome insects affecting pot plants. If by chance plants are grown out of doors, weekly spraying with **Parzate** will prevent leaf spot.

Shading and Disbudding

Some procedure as for cut flower crop. Black cloth treatment should continue until the buds are taken. The last pinch is usually made at the same date short day treatment is started. However, if you are troubled with tall potted plants, delay the last pinch until 5 or even 10 days after starting the shading program. Disbud each shoot to one bud when buds are large enough to handle.

Hardy Mum Pot Plants for Mother's Day

Garden or hardy mum plants in full bloom make ideal potted plants for Mother's Day. This should be a valuable addition to the list of spring pot plants. For best results 5 cuttings should be planted into a 6" pot or 2 cuttings into a 4" pot. After these pot plants are through flowering they should be cut back within three inches of the soil level and planted into the garden. These same plants will bloom again in the fall. There is a long list of varieties to choose from and to facilitate selection we are offering a 500 cutting collection suitable for this culture. This collection has the better varieties which have been tried and proven.

Single Pinch Method

1. Plant 5 rooted cuttings from lighted stock, March 3 in a 6" pot.
2. Pinch plants March 10.
3. Grow in 60° house.
4. Apply black cloth April 14, if necessary.

Two Pinch Method

1. Plant 5 rooted cuttings from lighted stock, February 11, and pinch same day.
2. Apply 4 hours of additional light each night from Feb. 11 to March 10.
3. Pinch second time March 10, give short day treatment April 14, if necessary.
4. Grow in 60° house.



Hardy Pot Mums for Mother's Day

Pot Plant Continuous Blooming Schedule

ONE PINCH METHOD

Varieties	Plant 5 cuttings in 6" pot	Lighting Period	Pinch	Shade	Flower	
Blazing Gold	Nov. 3	Nov. 3 - Nov. 17	Nov. 17	no	JANUARY 12	
Wilson's White	Nov. 3	Nov. 3 - Nov. 17	Nov. 17	no		
Queen's Lace						
Yellow Lace						
Indianapolis White	Oct. 27	Oct. 27 - Nov. 3	Nov. 3	no		
Little America						
Indianapolis Dark Yellow						
Copperhead						
Indianapolis Pink						
Queen of Pinks						
Bonaffon Deluxe	Oct. 20	Oct. 20 - Oct. 27	Oct. 27	no		
Blazing Gold	Nov. 17	Nov. 17 - Dec. 1	Dec. 1	no	JANUARY 26	
Wilson's White	Nov. 17	Nov. 17 - Nov. 24	Nov. 24	no		
Queen's Lace						
Yellow Lace						
Indianapolis White	Nov. 10	Nov. 10 - Nov. 17	Nov. 17	no		
Little America						
Indianapolis Dark Yellow						
Copperhead						
Indianapolis Pink						
Queen of Pinks						
Bonaffon Deluxe	Nov. 3	Nov. 3 - Nov. 10	Nov. 10	no		
Blazing Gold	Dec. 1	Dec. 1 - Dec. 15	Dec. 15	no	FEBRUARY 9	
Wilson's White	Dec. 1	Dec. 1 - Dec. 15	Dec. 15	no		
Queen's Lace						
Yellow Lace						
Indianapolis White	Nov. 24	Nov. 24 - Dec. 1	Dec. 1	no		
Little America						
Indianapolis Dark Yellow						
Copperhead						
Indianapolis Pink						
Queen of Pinks						
Bonaffon Deluxe	Nov. 17	Nov. 17 - Nov. 24	Nov. 24	no		
Blazing Gold	Dec. 15	Dec. 15 - Dec. 29	Dec. 29	no	FEBRUARY 23	
Wilson's White	Dec. 15	Dec. 15 - Dec. 22	Dec. 22	no		
Queen's Lace						
Yellow Lace						
Indianapolis White	Dec. 8	Dec. 8 - Dec. 15	Dec. 15	no		
Little America						
Indianapolis Dark Yellow						
Copperhead						
Indianapolis Pink						
Queen of Pinks						
Bonaffon Deluxe	Dec. 1	Dec. 1 - Dec. 8	Dec. 8	no		

*Gloeckner***CHRYSANTHEMUM CUTTINGS***Pot Plant Continuous Blooming Schedule***ONE PINCH METHOD**

Varieties	Plant 5 cuttings in 6" pot	Lighting Period	Pinch	Shade	Flower
Blazing Gold	Jan. 7	Jan. 7 - Jan. 14	Jan. 14	no	MARCH 10
Granite State	Jan. 7	none	Jan. 7	no	
Wilson's White					
Queen's Lace					
Yellow Lace					
Indianapolis White	Dec. 31	none	Dec. 31	no	
Little America					
Indianapolis Dark Yellow					
Copperhead					
Indianapolis Pink					
Queen of Pinks					
Bonaffon Deluxe	Dec. 24	none	Dec. 24	no	
Blazing Gold	Jan. 28	none	Jan. 28	no	MARCH 24
Granite State	Jan. 21	none	Jan. 21	no	
Wilson's White					
Queen's Lace					
Yellow Lace					
Indianapolis White	Jan. 14	none	Jan. 14	no	
Little America					
Indianapolis Dark Yellow					
Copperhead					
Indianapolis Pink					
Queen of Pinks					
Bonaffon Deluxe	Jan. 7	none	Jan. 7	no	
Blazing Gold	Feb. 11	none	Feb. 11	no	APRIL 7
Granite State	Feb. 4	none	Feb. 4	no	
Wilson's White					
Queen's Lace					
Yellow Lace					
Indianapolis White	Jan. 28	none	Jan. 28	no	
Little America					
Indianapolis Dark Yellow					
Copperhead					
Indianapolis Pink					
Queen of Pinks					
Bonaffon Deluxe	Jan. 21	none	Jan. 21	no	
Blazing Gold	Feb. 25	none	Feb. 25	no	APRIL 21
Granite State	Feb. 18	none	Feb. 18	no	
Wilson's White					
Queen's Lace					
Yellow Lace					
Indianapolis White	Feb. 11	none	Feb. 11	no	
Little America					
Indianapolis Dark Yellow					
Copperhead					
Indianapolis Pink					
Queen of Pinks					
Bonaffon Deluxe	Feb. 4	none	Feb. 4	no	

Pot Plant Continuous Blooming Schedule

ONE PINCH METHOD

Varieties	Plant 5 cuttings in 6" pot	Pinch	Shade	Flower
Blazing Gold	Mar. 10	Mar. 10	Apr. 9	MAY 5
Granite State	Mar. 3	Mar. 3	Apr. 2	
Wilson's White				
Queen's Lace				
Yellow Lace				
Indianapolis White	Feb. 25	Feb. 25	Mar. 25	
Little America				
Indianapolis Dark Yellow				
Copperhead				
Indianapolis Pink				
Queen of Pinks				
Bonaffon Deluxe	Feb. 18	Feb. 18	Mar. 18	
Blazing Gold	Mar. 24	Mar. 24	Apr. 9	MAY 21
Granite State	Mar. 17	Mar. 17	Apr. 2	
Wilson's White				
Queen's Lace				
Yellow Lace				
Indianapolis White	Mar. 10	Mar. 10	Mar. 25	
Little America				
Indianapolis Dark Yellow				
Copperhead				
Indianapolis Pink				
Queen of Pinks				
Bonaffon Deluxe	Mar. 3	Mar. 3	Mar. 18	
Blazing Gold	Apr. 14	Apr. 14	Apr. 14	JUNE 9
Granite State	Apr. 7	Apr. 7	Apr. 7	
Wilson's White				
Queen's Lace				
Yellow Lace				
Indianapolis White	Mar. 31	Mar. 31	Mar. 31	
Little America				
Indianapolis Dark Yellow				
Copperhead				
Indianapolis Pink				
Queen of Pinks				
Bonaffon Deluxe	Mar. 24	Mar. 24	Mar. 24	
Blazing Gold	Apr. 28	Apr. 28	Apr. 28	JUNE 23
Granite State	Apr. 21	Apr. 21	Apr. 21	
Wilson's White				
Queen's Lace				
Yellow Lace				
Little America	Apr. 14	Apr. 14	Apr. 14	
Copperhead				
Queen of Pinks				
Bonaffon Deluxe	Apr. 7	Apr. 7	Apr. 7	

*Pot Plant Continuous Blooming Schedule***ONE PINCH METHOD**

Varieties	Plant 5 cuttings in 6" pot	Pinch	Shade	Flower
Blazing Gold	May 19	May 19	May 19	JULY 14
Granite State				
Wilson's White				
Queen's Lace	May 12	May 12	May 12	
Yellow Lace				
Golden Glory				
Little America	May 5	May 5	May 5	JULY 28
Bonaffon Deluxe	Apr. 28	Apr. 28	Apr. 28	
Blazing Gold	June 2	June 2	June 2	
Granite State				
Wilson's White				
Queen's Lace	May 26	May 26	May 26	AUGUST 11
Yellow Lace				
Golden Glory				
Little America	May 19	May 19	May 19	
Bonaffon Deluxe	May 12	May 12	May 12	
Blazing Gold	June 16	June 16	June 16	AUGUST 25
Granite State				
Wilson's White				
Queen's Lace	June 9	June 9	June 9	
Yellow Lace				
Golden Glory				
Little America	June 2	June 2	June 2	
Bonaffon Deluxe	May 26	May 26	May 26	
Blazing Gold	June 30	June 30	June 30	
Granite State				
Wilson's White				
Queen's Lace	June 23	June 23	June 23	
Yellow Lace				
Golden Glory				
Little America	June 16	June 16	June 16	
Queen of Pinks				
Bonaffon Deluxe	June 9	June 9	June 9	

*Pot Plant Continuous Blooming Schedule***TWO PINCH METHOD**

Varieties	Plant	First Pinch	Shade and Last Pinch	Flower
Gold Lode Blazing Gold	Mar. 31	Apr. 14	May 5	JUNE 30
Gold Lode Blazing Gold	Apr. 14	Apr. 28	May 19	
Granite State * Queen's Lace Wilson's White Golden Glory * Yellow Lace	Apr. 7	Apr. 21	May 12	JULY 14
Blazing Gold	Apr. 28	May 12	June 2	
Granite State * Queen's Lace Wilson's White Golden Glory * Yellow Lace	Apr. 21	May 5	May 26	JULY 28
Blazing Gold	May 12	May 26	June 16	
Granite State Wilson's White Golden Glory	May 5	May 19	June 9	AUGUST 11
Little America Copperhead Queen of Pinks	Apr. 28	May 12	June 2	
Bonaffon Deluxe	Apr. 21	May 5	May 26	
Christina Blazing Gold	May 26	June 9	June 30	
Granite State Wilson's White Golden Glory	May 19	June 2	June 23	AUGUST 25
Little America Copperhead Queen of Pinks Gypsy	May 12	May 26	June 16	
Bonaffon Deluxe	May 5	May 19	June 9	

*Pinch last time 10 days after shading is started.

*Pot Plant Continuous Blooming Schedule***TWO PINCH METHOD**

Varieties	Plant	First Pinch	Shade and Last Pinch	Flower
Christina	June 9	June 23	July 14	} SEPTEMBER 8
Blazing Gold				
Granite State	June 2	June 16	July 7	
Wilson's White				
Golden Glory				
Little America	May 26	June 9	June 30	
Copperhead				
Gypsy				
Queen of Pinks				
Bonaffon Deluxe	May 19	June 2	June 23	
Christina	June 23	July 7	July 28	} SEPTEMBER 22
Blazing Gold				
Granite State	June 16	June 30	July 21	
Wilson's White				
Golden Glory				
Glitters	June 9	June 23	July 14	
Little America				
Copperhead				
Gypsy				
Queen of Pinks				
Bonaffon Deluxe	June 2	June 16	July 7	
Christina	July 7	July 21	Aug. 11	} OCTOBER 6
Blazing Gold				
Granite State	June 30	July 14	Aug. 4	
Wilson's White				
Golden Glory				
Glitters	June 23	July 7	July 28	
Little America				
Copperhead				
Gypsy				
Queen of Pinks				
Bonaffon Deluxe	June 16	June 30	July 21	
Christina	July 21	Aug. 4	Aug. 25	} OCTOBER 20
Blazing Gold				
Granite State	July 14	July 28	Aug. 18	
Wilson's White				
Golden Glory				
Glitters	July 7	July 21	Aug. 11	
Little America				
Copperhead				
Gypsy				
Queen of Pinks				
Bonaffon Deluxe	June 30	July 14	July 28	

Pot Plant Continuous Blooming Schedule

TWO PINCH METHOD

Varieties	Plant	First Pinch	Shade and Last Pinch	Flower
Little America Copperhead Gypsy Queen of Pinks	July 21	Aug. 4	Aug. 25	} NOVEMBER 3
Bonaffon Deluxe	July 14	July 28	Aug. 18	
Little America Copperhead Gypsy Queen of Pinks	July 28	Aug. 11	Sept. 1 (No Shade)	} NOVEMBER 10
Bonaffon Deluxe	July 21	Aug. 4	Aug. 25 (No Shade)	

Varieties	Plant	First Pinch	Lighting Period	Last Pinch	Flower
Bonaffon Deluxe	Aug. 4	Aug. 18	Aug. 18 - Sept. 8	Sept. 8	NOVEMBER 24
Bonaffon Deluxe Beautiful Lady	Aug. 11 Aug. 11	Aug. 25 Aug. 25	Aug. 18 - Sept. 15 Aug. 25 - Sept. 8	Sept. 15 Sept. 15	} DECEMBER 1



Pinching on Time Will Produce Short Pot Plants

*Insects and Their Control***APHIDS, OR PLANT LICE**

All aphids are true sucking insects that insert their beaks through the surface of the leaf or stem and extract the juices from within.

INJURY. The feeding of aphids causes the plants to become sickly and stunted. The leaves curl inward, and when the flower terminal is infested the blooms will be deformed. Certain varieties of chrysanthemums are more susceptible to attack than others.

CONTROL. **Nicofume Fumigation** is an easy method of controlling the black aphid but will do very little to control the green or straw colored aphids. **Benzene Hexachloride** or **Parathion** is much more effective on the very resistant green or straw colored aphids. **Vaportone** is also effective when used at higher concentrations.

CHRYSANTHEMUM LEAF MINER

The larva or maggot disfigures and weakens chrysanthemum plants by mining in the leaves. It may do considerable harm to the crop, but is easily held in check.

INJURY. The young maggots burrow in the leaf tissue, leaving the upper and lower surfaces intact. The tunnels are irregular and winding. White blotches are thus formed, which later turn brown, and the leaves may die.

CONTROL. As soon as it is noticed that any leaves are infested, they should be picked off. **Parathion** or **TEPP** aerosol bombs are very effective.

CHRYSANTHEMUM MIDGE

The chrysanthemum midge is one of the most serious pests with which the grower has to deal. Under optimum conditions a little over a month is required to complete the life cycle from the egg to the adult. The eggs are reddish-orange in color and are usually deposited on the tender tips of the growth. Under favorable conditions the eggs hatch in about three days. The larva wanders about over the surface of the leaf for a day or two before finally penetrating into the leaf.

INJURY. The midge attacks all parts of the plant but prefers the tender growth. If the infestation takes place when the plants are small, they fail to grow, although if the plants are well developed when the infestation starts, the buds blight or are deformed and the plant is rendered unsalable.

CONTROL. Clean stock should be used wherever possible. Severely infested plants should be pulled up and burned. Nightly fumigation with **Calcium cyanide** or **Nicofume pressure fumigators** for 28 consecutive days will give good control. **Nicotine** Dust is also useful in keeping the plants covered and is especially useful when used in combination with fumigation. **Sodium selenate** is effective when applied in liquid form 1/4 gram per square foot after plants are well established. **Parathion** or **DDT** either as dust or spray is very effective.

*Aphids**Midge Injury to Leaves and Buds*

Insects and Their Control

CORN EAR WORM

The corn ear worm is a green to brown, nearly smooth caterpillar, often mistaken for a cutworm when found within the buds or on the open flowers.

INJURY It is very destructive to the opening buds, for it feeds on their petals and other parts, deforming if not entirely ruining the flowers.

CONTROL. If the attacked plants are blooming, spraying is out of the question, but thorough treatment with a 3 or 5% **D.D.T.** dust is recommended. After they have worked their way into the buds and are found to be feeding on the open flowers, hand-picking is the only remedy. Spraying the plants with **Deenate 50W** will control them before the color shows. **Parathion** fumigation will also keep them under control.

CUTWORMS

The larva is dull colored and from one to more than two inches in length. They are most active at night, and usually spend the day coiled up just under the surface of the soil at the base of the plant. They should not be confused with the corn ear worm which cannot be controlled by poison baits.

INJURY. Cutworms obtain their food by biting out sections of the leaf, stem or bud. Various species attack different parts of the plant. The one that is most damaging climbs to the top of the stem and eats into the flower buds.

CONTROL. Those cutworms that feed on the foliage can best be controlled with **Deenate 50W** spray using 1½ pounds to 100 gallons of water. **Parathion** has been suggested as a good control measure, more effective as a spray.

GREENHOUSE LEAF TYER

It gets its name from its habit of spinning light webs inclosing two or more leaves or tying together the parts of a single leaf. This caterpillar is very active, and when disturbed will wriggle off the leaf, often backwards, lowering itself on a silk-like strand.

INJURY. When first hatched, the larvae eat out shallow holes on the under side of the leaf. As they grow, they enlarge these holes but usually do not cut through to the upper surface. The result is that the leaves become skeletonized.

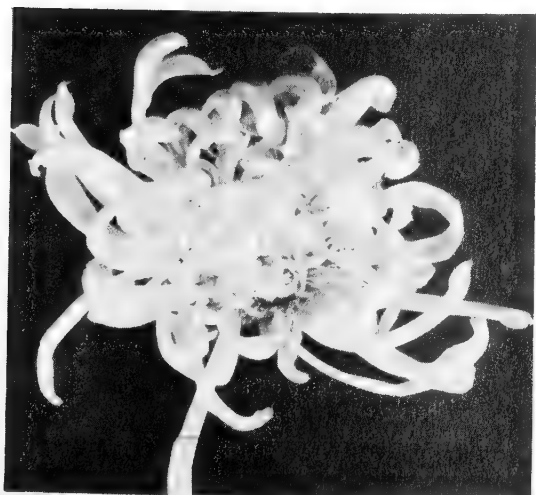
CONTROL. The best poison to control the larvae is **Deenate 50W**, either in the form of a dust or a spray. For liquid spray use 1½ pounds of **Deenate 50W** to 100 gallons of water. Regular fumigations with **Parathion** will keep the leaf tyer under control.

MEALY BUGS

Mealy bugs are small, sluggish, whitish, soft bodied insects, measuring up to ¼ inch long, found in clusters on the undersides of the leaves or in the leaf axils.

INJURY. This pest sucks the juices from the stems and leaves, discoloring and deforming the foliage.

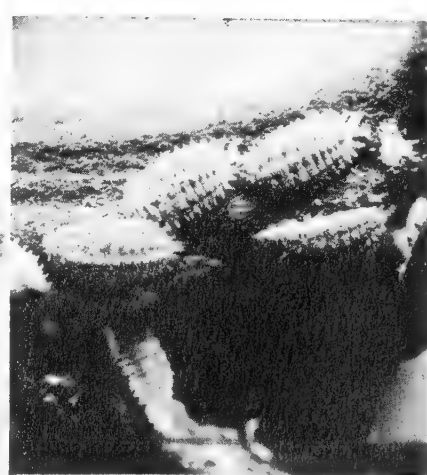
CONTROL. **Parathion** is the most effective. Regular fumigations with **Calcium Cyanide** will aid in keeping mealy bugs in check.



Corn Ear Worm Damage



Leaf Tyer



Mealy Bugs

*Insects and Their Control***MITES**

Cyclamen mite and broad mite are often found on the same plants at the same time. Broad mite could pass through a complete generation in 4 to 5 days at 70 to 80 degrees while the cyclamen mite will take 4 to 5 times longer.

INJURY. Infested leaves become deformed, curl from the outside inward, and wrinkle so that pockets and pit-like depressions are formed. When the infestation is severe, the mites collect about the buds, causing them to blight. Oftentimes white varieties will show occasional red petals.

CONTROL. **Parathion** dusts or sprays are more effective than bombs. **Vapotone** containing **HETP** has given good control. **Sodium Selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established. **P40** used at the rate of 3 pounds per hundred square feet is another way to use sodium selenate.

RED SPIDERS

There are several species of red spiders that attack the chrysanthemum. They vary in color through yellow, orange and red. The body is oval in outline and bears eight well-developed legs.

INJURY. Red spiders pierce the epidermis of the leaf and draw the liquid contents from the cells, causing the leaf to turn pale around the injured portion. They prefer to collect on the under surfaces of the leaves, which they cover with silken threads.

CONTROL. **Parathion** or **TEPP** bombs are most effective and easiest to apply. **HEPT** or **TEPP** contained in insecticides such as **Vapotone** are by far the most effective on red spider. Moisture is detrimental to the development of the red spiders and frequent syringing washes them and their eggs off the plants. **Sodium selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot or **P40** at 3 pounds per 100 sq. ft. after plants are well established; especially desirable for cloth house operators, will also control foliar nematodes. **Dithion** is another new material which looks promising. **Plantfume 103** smoke generators and **Fulex Parathion Fumigators** are simple to use and very effective. The latest control is **ARAMITE 15-W**.

SYMPHYLIDS

Symphylids are small white creatures about $\frac{1}{8}$ to $\frac{3}{16}$ inches long. About 40-60 days are necessary for the completion of the life cycle.

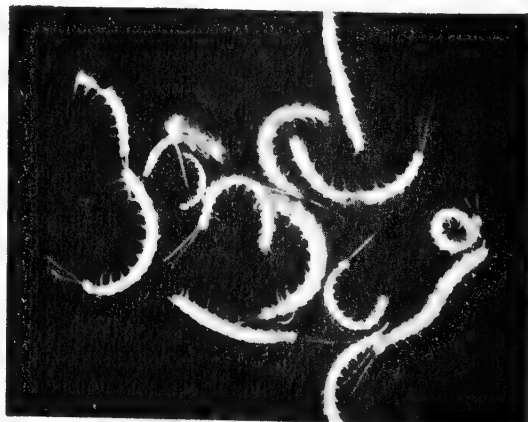
INJURY. Symphylids destroy the fine root hairs and small rootlets, thus stunting the plants and often killing them outright.

CONTROL. If possible construct raised benches. Steam sterilization has given fair control. **Dowfume G** or **Dow MC2** when properly applied will give good control. **Isotox** (15% benzene hexachloride) or 15% wettable powder of **Parathion** has been used as follows with no apparent damage: Place 3 ounces in 30 gallons of water and apply to 100 sq. ft. of bench space. Several applications 2 - 3 weeks apart may be necessary for a complete clean-up.

SOW BUGS

INJURY. Sowbugs often become so plentiful in the greenhouse that they eat the newly planted cuttings at the base.

CONTROL. Any of the many poison baits will give partial control but a complete spraying with **DDT** under the benches has given excellent control. **Deenate 50W** will give complete control.

*Mite Injury**Red Spider Injury**Symphylids Enlarged 10x*

Insects and Their Control

TARNISHED PLANT BUGS

The tarnished plant bug or sting fly comes into the greenhouse through open doors and ventilators in late summer or early fall and does considerable harm to this crop. Chrysanthemums growing in the open are frequently affected. Varieties such as Mary L. Hall and Sea Gull are attacked to a greater extent than other varieties.

INJURY It has sucking mouth parts and obtains its food by inserting its long, slender beak into the plant tissues and sucking up the contents of the injured cells, apparently injecting saliva, which causes the death of the tissue in the immediate vicinity. The stem is often slightly bent and the terminal growth is malformed because of this injection.

CONTROL. Early morning spraying or dusting with any of the pyrethrum materials will kill those bugs that are present but this will have to be done each day for complete eradication. **Deenate 50W** has been giving fair control but again this insecticide is best used as a contact. **Parathion** fumigation will control this insect in the greenhouse.

TERMITES

Termites are not ants, though often called white ants. The food of termites is wood or cellulose. Soil inhabiting forms are the most common in the greenhouse.

INJURY. Termites sometimes injure chrysanthemum plants by working up the center of the plant and hollowing out the stem. This injury will eventually kill the plant.

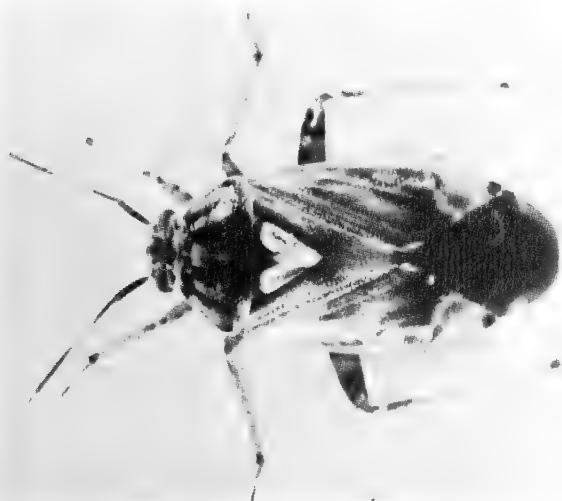
CONTROL. **Isotox** (15% benzene hexachloride) or the 15% wettable powder of **Parathion** has been used as follows with no apparent damage: Place 3 ounces in 30 gallons of water and apply to 100 sq. ft. of bench space.

THRIPS

The chrysanthemum is usually attacked by one or more species of thrips. These small, narrow-bodied, active insects which range in color from yellow to brown or almost black, injure both the leaves and the blossoms. Thrips are a real threat to Florida mum growers.

INJURY. Thrips have mouth parts that are fitted for piercing and scraping the leaf surface and for sucking the juices and other cell contents. The upper surface of the foliage is covered with whitish blotches while minute black specks appear on the lower surface. Unless a constant watch is kept on the plants, and control measures properly executed, thrips are capable of causing severe injury within a short time.

CONTROL. **Deenate 50W** used at the rate of 1-1½ pounds to 100 gallons of water is a very effective control. Other insecticides containing **Benzene Hexachloride** are also recommended. **Parathion** will control the chrysanthemum and onion thrips. Regular dustings or spraying are necessary where infestation is heavy.



Tarnished Plant Bug



Thrip Injury

Pests and Their Control

FOLIAR NEMATODE

The spread of this pest has been very rapid in recent years owing to the increased trade in chrysanthemums, and the ease with which the nematode is transported in plants and cuttings. Too few growers have become familiar with this pest and consequently no effort has been put forth to control it.

SYMPTOMS. The leaves attacked become blotched, turn at first greenish-yellow, then brownish, later gray and finally black until the entire leaf dies and hangs down on the stem. Under conditions of high humidity, both in the open during a wet season and under glass owing to excessive watering, the spread of the pest may be extremely rapid.

CONTROL. **Sodium Selenate** applied in liquid form to the soil at the rate of $\frac{1}{4}$ gram per square foot of bed area will give good control. Dissolve 1 pound of sodium selenate into $4\frac{1}{2}$ gallons of water, then take one quart of this stock solution and add to 25 gallons of water and this should be applied on 100 square feet of bench surface. One pound of sodium selenate will treat 1800 square feet. The safest method is to make 2 applications at the $\frac{1}{8}$ gram rate a week or so apart. **P40** applied at the rate of 3 pounds per 100 square feet has given good control. Wait 2 to 4 weeks after benching before applying. It is better to apply **P40** in 2 applications, $1\frac{1}{2}$ pounds each time, 7 to 10 days apart. The latest findings show that foliar nematodes can be controlled with **Parathion** either as an aerosol or liquid spray.

Diseases and Their Control

COLLAR ROT or STEM ROT

SYMPTOMS. The area of stem just at the soil level will show dark colorings first. The entire stem will be girdled and eventually the plant will turn yellow and die. Usually caused by the common damping off organisms such as *Rhiztonia*, *Fusarium* or *Pythium*. More prevalent when temperature and humidity are high.

CONTROL. Do not plant cuttings that have been affected with damping off. Remove all affected plants when noticed. Do not keep the soil too moist. Run a lower humidity if possible. Plant cuttings no deeper than depth they were in propagating media as too deep planting will hasten development. Have soil well prepared as compact soils will also encourage trouble.

MILDEW

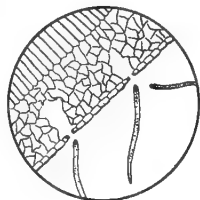
SYMPTOMS. Whitish powdery growth on upper surface of leaves.

CONTROL. Spray at regular weekly intervals with a good **Wettable Sulfur**, 1 lb. per 100 gallons of water to which a good commercial spreader has been added. **Parzate**, 1 ounce to 4 gallons of water is effective.

BIOLOGY OF THE FOLIAR NEMATODE



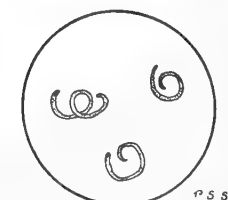
Eelworms becoming active and commencing their migration from the ground up the outside of the stem and leaf-stalks into the basal leaves.
(Spring)



Eelworms entering leaf through the stomata.
(Spring-Summer)



Eelworms feeding and breeding in leaves and migrating upwards from leaf to leaf.
(Spring-Autumn)



Eelworms overwintering in soil, dead leaves and in basal buds.
(Winter)

P. S. S.

Diseases and Their Control

RAY BLIGHT OR FLOWER SPOT

SYMPTOMS. The petals first show little spots and then the entire petal begins to rot. May be caused by *Botrytis* or *Ascochyta*. *Botrytis* is spread primarily by splashed water.

CONTROL. It is controlled by lowering humidity or spraying plants with **Parzate** when they show color. Spray with **Parzate** 1 ounce to 4 gallons of water plus $\frac{1}{3}$ teaspoonful of **Du Pont Spreader Sticker** on the flower from below and above as soon as color shows and continue at 5-day intervals.

ROOT KNOT NEMATODE

SYMPTOMS. The nematodes or eelworms bore into the roots of the plants and cause knots or galls to develop on the root systems. As a result the plants are weak, yellowish and stunted in growth.

CONTROL. Steam sterilization of the soil is very effective in eliminating the nematodes. **Dowfume G** is a good soil fumigation that will kill nematodes and not do any damage to the surrounding plants.

RUST

SYMPTOMS. Chocolate brown powdery pustules on lower surface of the leaves.

CONTROL. **Parzate**, 1 ounce to 4 gallons of water is most effective.

SEPTORIA LEAF SPOT OR LEAF BLIGHT

SYMPTOMS.

CONTROL. When cuttings are received dunk the tops into **Fermate** (2 tablespoonfuls to a gallon). Spray the plants with **Parzate** 1 ounce to 4 gallons of water plus $\frac{1}{3}$ teaspoonful of **Du Pont Spreader Sticker** every ten to fourteen days. Cloth house mums should be kept covered until the buds can be seen.

VERTICILLIUM WILT OR SEIDEWITZ DISEASE

SYMPTOMS. Margins of leaves turn yellow and eventually wilt or dry up. This begins at base of plant and works up the stems. May affect one side of a stem or plant more than the other. No distinct spots. Varieties vary in resistance to this disease.

CONTROL. Verticillium wilt can be avoided by purchasing our disease free cuttings produced from **cultured stock**. It is also necessary to plant only into sterilized soil.



Dodder Growing on Mums



Septoria Leaf Spot

Pests and Their Control

VIRUSES

The word "virus" is being referred to by the medical profession as well as by the florists and a short explanation of virus should prove of interest.

Viruses of the chrysanthemum are considered to be infectious; that is they can be transmitted to a healthy plant only by contact with an infected plant. They are not carried in the soil, water or air as are other diseases caused by fungi and bacteria.

The virus particles cannot be seen by the most powerful microscopes. Most of them will pass through bacterial filters. They respond like living organisms. They are always present in the sap of diseased plants and can be transmitted to a healthy plant through wounds or by mechanical means. The chrysanthemum is known to be affected with three viruses, namely yellows, mosaic and stunt. Stunt is the only one that has caused much concern. It has been found that aphids as well as mechanical handling will cause stunt to spread.

Once a plant is infected with a virus it usually always remains affected. To define a virus the following is as good as any: A virus is a protein which requires the presence of living cells for multiplication and it causes changes in the structure and functions of living cells.

Stunt
Aster Yellows
Spotted Wilt

Blanche Mosaic or Virus Q
Nightingale Mosaic
Ivory Sea Gull or Crinkle

COMBINATION SPRAYS

At times it is more economical and convenient to mix two or more sprays and apply them in one operation. Before such mixtures are prepared, the grower should be sure no reaction harmful to the plants will occur, and that the efficiency of the separate ingredients is not reduced. Consult your State Entomologist or Plant Pathologist for information on combination sprays for specific crops.

A good combination spray for chrysanthemums which will control most diseases and insect pests, can be made with Parzate, DDT and Vaportone. Details on dilutions are as follows:

Material	Amount to Make		
Water	100 gallons	20 gallons	3 gallons
DuPont Spreader Sticker	6 oz.	2 tablesp.	1 teasp.
Parzate	1½ lbs.	5 ounces	2 tablesp.
Deenate 50W	1 lb.	¼ lb.	1½ tablesp.
*Vaportone	½ pt.	3½ tablesp.	1½ teasp.

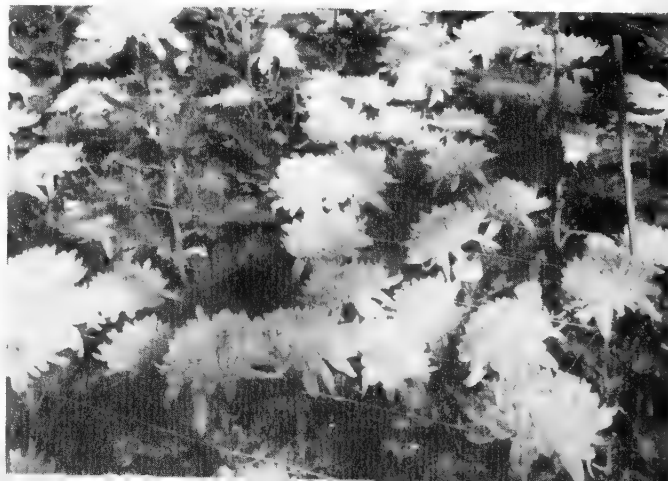
To prepare: (1) Measure out spreader and dilute in small amount of water. (2) Fill tank with required water and add the diluted spreader and stir. (3) Take out a small amount in jar, add the proper amount of the Parzate and shake vigorously until all the powder is thoroughly wetted. (4) Pour this mixture back into the tank, preferably through a fine screen or cheesecloth and stir. (5) Measure out Vaportone and dilute in small amount of water and add to the tank. Keep stirring or keep agitator running while adding the materials.

* Parathion, 15% wettable powder may be substituted for Vaportone and used at the same rate as Parzate, 1½ lbs. per 100 gal.; 5 ounces per 20 gal. and 2 teasp. per 3 gal.

DODDER

SYMPTOMS. Dodder is a parasitic twiner, bearing clusters of small flowers. They are leafless annuals, with very slender yellow, white or red stems, which become attached to the plant by means of root-like suckers. Dodder is occasionally found on chrysanthemums and will cause a complete loss of crop.

CONTROL. Dodder is common in low, weedy places and may be carried into the greenhouse in the soil or manure. Soil sterilization is the only prevention. After dodder is attached to the plants remove the affected plants and burn.



New Introductions

STANDARDS

YELLOW

YELLOW MOELLER — Sport of Margaret Moeller. December 3.

BRONZE

NOMAGO — Bronze SPIDER. The best of the bronze spider varieties. November 5.

POT VARIETIES

YELLOW

DK. INDIANAPOLIS YELLOW — For pot plant use only. Somewhat shorter in growth habit than Ind. Yellow. November 5.

WHITE

WILSON'S WHITE — Intermediate incurved. Outstanding white standard for pots. November 1.

YELLOW POMPONS

SUNUP — Small deep yellow POMPON. A little smaller than Gold Coast and larger than Pixie. Harder and more durable than Gold Coast. A good producer which withstands high temperatures and heavy cropping better than Gold Coast. Recommended May through October. Sharp uniform response. Oct. 28.

PIPPIN — Intermediate yellow POMPON. Follows Lollipop and precedes Sunnyside easily making Thanksgiving. Variety produces heavily on compound sprays. Shades well and lights well. Very dependable. Nov. 20.

GOLDENROD — Full round and solid yellow POMPON with exceptional substance and keeping qualities. Can be kept on the plant for a long time without impairing the color, substance or form of the flower. Gives a heavy production of high quality sprays. Nov. 25.

HIGHLANDER — Intermediate formal DECORATIVE. Better production and freer growth than Goldsmith. Highly dependable for production and quality. Very close to a Yellow Highbrow. Nov. 25.

NOSEGAY — Small yellow POMPON. Lively, durable; grows and produces like Omega. Can be flowered from Oct. to April. Dec. 1.

JACK-POT — Very large golden yellow DECORATIVE. A new peak in growth and form of flower has been achieved in this variety. It responds sharply and requires no disbudding. This variety approaches perfection in yellow pompoms. Dec. 5.

BRANDYWINE — A deep orange yellow DECORATIVE. Excellent growth habit similar to that of Yuleflame. Season Dec. through Feb. Dec. 5.

SYMMETRY — Intermediate yellow POMPON. Short, stocky growth. Perfect form. Does not shatter. Best for flowering in natural season. Dec. 5.

CORSAIR — Large yellow POMPON. Outstanding for quality, vigor and production. A "best" for Oct. 15 to Mar. 15 in yellow pompoms. Dec. 12.

YELLOW SNOWCREST — A clear yellow sport of Snowcrest. Dec. 15.

REVELRY — Intermediate light yellow DECORATIVE resembling Yellow Revelation with an improved flower quality. A dependable, late, low temperature productive variety. Dec. 20.

SUNRISE — A yellow POMPON best described as a late Gold Coast. Sunrise is not sensitive to low night temperatures. A better growth habit than either Yellow Snow or Golden Anniversary. Dec. 20.

YELLOW SINGLES

BRIGADOON — Bright heavily petalled Yellow DAISY. Excellent growth and production. Responds rapidly and uniformly. Wholesale shippers welcome this type of daisy. Good May through October. Nov. 5.

THOROBRED — Large yellow DAISY. Good growth habit, fine production. Very easily grown. Excellent form, petallage and substance. Nov. 15.

WHITE POMPONS

NORONA — White, medium, solid POMPON. Very desirable for earliest shading under black cloth. A very free and productive variety possessing good growth habit. Use in place of Irene for early shading in the cloth house. Oct. 15.

WHITE POPCORN — Cream white sport of Popcorn. No trace of pink in the flower at low temperatures. A productive white POMPON. Oct. 25.

KEEPSAKE — Cream white POMPON. About the size and form of Popcorn. Hard, durable flower. Taller and freer growth than Popcorn. For May through July in the greenhouse and Aug. and Sept. in the cloth house. Prompt and uniform response to shade. Oct. 25.

MADONNA — Intermediate white POMPON of good clean growth. Variety just precedes Encore. Its place is in the spring program in May and June where it takes high temperature well. Will show pink tinges at low temperatures. Nov. 5.

DYNAMO — White POMPON. Very similar to Encore but greatly improves that variety in growth habit. Very high quality cloth house white pompon. Fine in May and June in the greenhouse. Nov. 10.

MONARCH — Ivory white large DECORATIVE. Larger, harder flower than Cameo. Clean, vigorous growth. Responds rapidly and uniformly. Dec. 1.

ACCLAIM — Large formal type POMPON. Clean Omega type growth, no laterals. Follows Paramount and Fortune. Lights and shades well. As fine a formal pompon as exists. A white Corsair. Dec. 5.

COTILLION — Intermediate semi-formal POMPON. Very clear white. Heavily petalled, extreme substance. Short, easily controlled growth. Responds well and cuts uniformly. A late Encore with a very hard flower. Dec. 5.

SNOWDROP — White BUTTON POMPON with uniform growth and good production. Stems are strong and flowers possess a fairly good substance. December 8.

SNOW QUEEN — Medium large formal white POMPON of the purest white. Possesses very good substance. Sprays produced on good stems are well flowered. Good healthy and free growth. It is not vegetative. Not recommended for shading. Dec. 10.

SATELLITE — Ivory White, formal, intermediate POMPON. Vigorous Silversmith habit. Very high class flower, especially brilliant under artificial light. Responds slowly but uniformly. Dec. 15.

WHITE SINGLES

SCULPTURE — Large ivory white DAISY. Excellent in May and June. Very close to a White Valencia for cloth house, responding much faster than that variety and with considerable better production. Nov. 15.

ESKIMO — Clear white DAISY. Fine form and excellent substance. Stands cloth house adverse conditions well. Very fine keeper and a very durable flower. Nov. 15.

(Continued on next page)

*New Introductions***BRONZE and RED POMPONS**

ILLINI BURMA—Light bronze; large POMPON. Responds well to disbudding and partial disbudding. Satisfactory as a pot plant. Stiff stems and uniform, above average production. Nov. 10.

ILLINI RYE—Straw color intermediate POMPON. Exceptional substance and stem strength. Very uniform. Shades well. Nov. 12.

GOLD BRAID—A beautiful, two-tone bronze pompon. Fine from Sept. 15 to Nov. 15. Blooms Nov. 12.

THELMA—Very brilliant orange scarlet POMPON. Excellent September 15 to Christmas. A beautiful red that never loses its brilliance. A sensation in the late cloth house. Nov. 20.

AMBERINA—Bright orange bronze intermediate DECORATIVE. Vigorous, clean growth. A late Princeton with very high production. Responds well and grows dependably under most any temperature or light conditions. Dec. 1.

HARLEQUIN—Crimson red intermediate DECORATIVE. Vigorous wiry growth. Excellent low temperature variety. Fast, uniform response. Dec. 10.

BRONZE and RED SINGLES

BUCCANEER—Rich bronze DAISY with very little fading even under high temperatures. Fine growth and production. Darker and richer bronze than Buckskin or Sylvanna. This variety fills a long felt need for a cloth house bronze daisy with petallage and substance. Nov. 1.

TOPAZ—Warm, orange bronze SINGLE. Heavily petalled with good substance and vigorous, free growth. Will not go blind. Bronze, generally believed to be of slight value at this season, finds in Topaz a very brilliant color which is striking under artificial lights. Dec. 15.

CLARET—A brilliant red DAISY for Christmas. A short stocky growth. Requires minimum of 55°—60° F night temperature for best development. Dec. 15.

POINSETTIA—Scarlet red large DAISY. Strong growth. Needs no disbudding. Attains the size of the Valencias on natural sprays. Responds uniformly, takes low temperature well. A most important addition to the Christmas season. Dec. 20.

BRONZE ANEMONES

SHALIMAR—Lively orange bronze Anemone. Short and compact. Habit well suited to pot planting culture or cut flowers. Sprays well or attain good size disbudded in pots. A useful improvement over Gypsy. A valuable variety to shade or delay. Nov. 15.

DAZZLER—Coppery bronze partial ANEMONE TYPE. Seedling of Yellow Valencia & Crimson Glow. Strong growing variety and a color that blends well. Dec. 5.

PINK POMPONS

PANDORA—Large luminous pink DECORATIVE. Excellent size and form. Growth is vigorous and fast, with short timing giving best results. Well suited to spring and cloth house flowering. Nov. 10.

VIVACIOUS LADY—Pink SPOON type novelty. For growing in sprays as well as disbuds. Nov. 20.

PRINCESS—Small pink POMPON. Very lively color, hard well rounded flower. Growth and production nearly identical to Snowflurry. Responds more uniformly than that variety. Nov. 25.

HERITAGE—Large formal dark pink POMPON. Free, vigorous growth, good production. Improves the production of Minuet and responds more uniformly than Riviera or Minstrel. Dec. 1.

PINK SINGLES

MERMAID—Intermediate pink DAISY. An excellent variety to follow Reward. Fine growth and production. Holds color well. Heavy petallage and good substance. Nov. 15.

GRAND SLAM—Brilliant silvery pink DAISY. Large flower, wide stiff petals. The variety responds well to shade. Growers will enthuse over its quality and production. Retailers will find in it the nearest color to a shell pink aster yet found in the Chrysanthemum. Nov. 20.

PINK ANEMONE

MEMORIAL—Intermediate pink ANEMONE. Excellent spray and growth. Improves the variety Linda Lou in substance, color and growth. Recommended April through November. Holds color well. A pink Little America flower, with a much cleaner and more vigorous growth habit. Nov. 12.



Large Flowering Varieties

Name	Last Pinch	Select Bud	Flowering Date	Description	Price 50 Only
YELLOW					
8-WEEK VARIETIES					
Gold Lode	July 5	Aug. 25	Oct. 15	Int. Reflexed	\$2.75
Celestra	July 5	Aug. 25	Oct. 15	Small Semi-Incurved	3.00
Mrs. Kidder	July 8	Aug. 30	Oct. 20	Int. Incurved	2.50
Butterball	July 8	Aug. 30	Oct. 20	Int. Incurved	3.50
Blazing Gold	July 10	Aug. 30	Oct. 23	Golden Yellow; Int. Semi-Incurved	3.00
9-WEEK VARIETIES					
Smith Superlative	July 10	Aug. 30	Oct. 25	Golden Yellow; Int. Semi-Incurved	3.25
Yellow Ambassador	July 10	Aug. 30	Oct. 25	Sport of Ambassador	3.00
Yellow Bergen	July 10	Aug. 30	Oct. 25	Sport of Hilda Bergen	3.25
Sunglow	July 10	Aug. 30	Oct. 25	Golden Yellow; Int. Incurved	2.50
Golden Glory	July 16	Sept. 5	Nov. 1	Golden Yellow; Int. Incurved	3.25
Good News	July 16	Sept. 5	Nov. 1	Int. Incurved	3.25
10-WEEK VARIETIES					
Ind. Yellow	July 19	Sept. 5	Nov. 5	Int. Incurved	3.00
Yellow Queen	July 22	Sept. 8	Nov. 10	Sport of Orchid Queen	3.25
Jamboree	July 22	Sept. 8	Nov. 10	Golden Yellow; Int. Incurved	4.50
Yellow Pockett	July 22	Sept. 8	Nov. 10	Large Incurved	3.25
Yellow Monument	July 22	Sept. 8	Nov. 10	Sport of Monument	3.00
Honey Dew	July 23	Sept. 8	Nov. 12	Int. Incurved	3.25
11-WEEK VARIETIES					
Bonaffon Deluxe	July 29	Sept. 20	Nov. 20	Small Incurved	2.50
Friendly Rival	July 29	Sept. 20	Nov. 20	Int. Incurved	3.00
Yellow Mefo	July 29	Sept. 20	Nov. 20	Sport of Mefo	3.00
Purdue	July 29	Sept. 25	Nov. 20	Int. Incurved	4.00
Harvester	July 31	Sept. 20	Nov. 23	Int. Incurved	3.00
Marie DePetris	July 31	Sept. 25	Nov. 23	Golden Yellow; Int. Incurved	3.00
12-WEEK VARIETIES					
Yellow Chattanooga	Aug. 1	Sept. 30	Nov. 25	Sport of Chattanooga	2.75
Golden Pearson	Aug. 1	Sept. 30	Nov. 25	Int. Incurved	2.75
Sungold	Aug. 1	Sept. 30	Nov. 25	Int. Incurved	3.00
Golden Mrs. Ross	Aug. 6	Oct. 1	Dec. 3	Golden Yellow; L. Incurved	2.75
Yellow Moeller	Aug. 6	Oct. 1	Dec. 3	Sport of Margaret Moeller	3.50
13-WEEK VARIETIES					
Golden Mistletoe	Aug. 8	Oct. 5	Dec. 5	Int. Incurved	3.25
Chalice	Aug. 8	Oct. 5	Dec. 5	Int. Incurved	5.00
Tobin's Yellow	Aug. 13	Oct. 8	Dec. 13	Int. Semi-Incurved	3.25
Meteore	Aug. 13	Oct. 8	Dec. 13	Int. Semi-Incurved	3.25
Dauntless	Aug. 13	Oct. 8	Dec. 13	Golden Yellow; Semi-Incurved	3.50
WHITE					
8-WEEK VARIETIES					
Silver Sheen	July 8	Aug. 30	Oct. 20	Int. Incurved	2.75
White Chief	July 8	Aug. 30	Oct. 20	Int. Incurved	3.50
9-WEEK VARIETIES					
Ambassador	July 10	Aug. 30	Oct. 25	Cream White; Int. Semi-Incurved	3.00
Albatross	July 16	Sept. 5	Nov. 1	Pure White; Int. Incurved	3.00
10-WEEK VARIETIES					
Betsy Ross	July 19	Sept. 5	Nov. 5	Ivory White; L. Incurved	3.00
Indianapolis White	July 19	Sept. 5	Nov. 5	Int. Incurved	3.00
Jean Elizabeth	July 22	Sept. 8	Nov. 10	L. Semi-Incurved	3.25
White Pockett	July 22	Sept. 8	Nov. 10	Large Incurved	3.25
Monument	July 22	Sept. 8	Nov. 10	Ivory White; Int. Incurved	3.00
11-WEEK VARIETIES					
Sterling	July 25	Sept. 10	Nov. 15	Large Incurved	4.00
Marketeer	July 27	Sept. 15	Nov. 18	Int. Semi-Incurved	3.00
Mefo	July 29	Sept. 20	Nov. 20	Ivory White; L. Incurved	3.00
White Frick	July 29	Sept. 20	Nov. 20	Int. Incurved	3.00
12-WEEK VARIETIES					
Chattanooga	Aug. 1	Sept. 30	Nov. 25	Large Incurved	2.75
December Glory	Aug. 6	Oct. 1	Dec. 1	Ivory White; Int. Incurved	3.00
Margaret Moeller	Aug. 6	Oct. 1	Dec. 3	Int. Incurved	3.00
13-WEEK VARIETIES					
December White	Aug. 8	Oct. 5	Dec. 5	Int. Incurved	3.25
White Mistletoe	Aug. 8	Oct. 5	Dec. 5	Int. Incurved	3.25
Snowline	Aug. 12	Oct. 8	Dec. 10	Large Incurved	4.50
Smith's White	Aug. 13	Oct. 8	Dec. 13	Int. Semi-Incurved	3.25

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Large Flowering Varieties

Name	Last Pinch	Select Bud	Flowering Date	Description	Price 50 Only
BRONZE and RED					
9-WEEK VARIETIES					
Hilda Bergen	July 10	Aug. 30	Oct. 25	Int. Incurred	\$3.25
Gliffers	July 12	Sept. 1	Oct. 28	Reddish Orange; Int. Reflexed	3.25
Ivanhoe	July 16	Sept. 5	Nov. 1	Reddish Bronze; Small Incurred	3.25
Apricot Queen	July 16	Sept. 5	Nov. 1	Orange Bronze; Int. Incurred	3.25
Detroit News	July 16	Sept. 5	Nov. 1	Reddish Bronze; Int. Incurred	3.25
10-WEEK VARIETIES					
Indianapolis Bronze	July 19	Sept. 5	Nov. 5	Int. Incurred	3.00
Anaconda	July 21	Sept. 7	Nov. 8	Coppery Red; Large Incurred	2.75
Oakdale	July 22	Sept. 8	Nov. 10	Buff Bronze; Int. Incurred	4.50
Mrs. Stahelin	July 22	Sept. 8	Nov. 10	Reddish Bronze; Int. Incurred	3.50
Mrs. Roy	July 25	Sept. 10	Nov. 13	Red; Int. Incurred	3.25
Garnet King	July 25	Sept. 10	Nov. 13	Deep Red; Int. Reflexed	3.25
12-WEEK VARIETIES					
Gladys Pearson	Aug. 1	Sept. 30	Nov. 25	Buff Bronze; Int. Incurred	2.75
Oak Leaf	Aug. 1	Sept. 30	Nov. 25	Deep Bronze; Int. Incurred	2.75
Muto's Crimson	Aug. 6	Oct. 1	Dec. 1	Red; Int. Semi-Incurred	4.00
13-WEEK VARIETY					
Bronze Mistletoe	Aug. 8	Oct. 5	Dec. 5	Int. Incurred	3.25
PINK					
8-WEEK VARIETY					
Pink Chief	July 5	Aug. 25	Oct. 15	Lavender; Int. Incurred	2.75
9-WEEK VARIETY					
Sugarplum	July 16	Sept. 5	Nov. 1	Int. Incurred	4.50
10-WEEK VARIETIES					
Indianapolis Pink	July 19	Sept. 5	Nov. 5	Int. Incurred	3.00
Orchid Queen	July 22	Sept. 8	Nov. 10	Orchid Pink; Semi-Incurred	3.25
Dark Orchid Queen	July 22	Sept. 8	Nov. 10	Deep Pink Sport of Orch. Queen	3.25
Pink Pockett	July 22	Sept. 8	Nov. 10	Large Incurred	3.25
11-WEEK VARIETIES					
Helen Frick	July 29	Sept. 20	Nov. 20	Rose Pink; Int. Incurred	3.00
Thanksgiving Pink	July 31	Sept. 25	Nov. 23	Deep Pink; Int. Reflexed	3.00
Ed. Seidewitz	July 31	Sept. 25	Nov. 23	Lavender; Int. Incurred	3.00
13-WEEK VARIETY					
Pink Mistletoe	Aug. 8	Oct. 5	Dec. 5	Int. Incurred	3.25

Odd Flowered Spider Types

Name	Last Pinch	Select Bud	Flowering Date	Description	Price 50 Only
9-WEEK VARIETIES					
Queen's Lace	July 16	Sept. 5	Nov. 1	White	\$4.00
Kay Tashima	July 16	Sept. 5	Nov. 1	White	3.50
Yellow Lace	July 16	Sept. 5	Nov. 1	Yellow	4.00
Mrs. Walker	July 16	Sept. 5	Nov. 1	Pink	3.50
Mary Garden	July 16	Sept. 5	Nov. 1	Pink	4.50
10-WEEK VARIETIES					
White Rayonnante	July 19	Sept. 5	Nov. 5	White	3.25
Waikiki	July 19	Sept. 5	Nov. 5	Apricot Bronze	3.50
Gena Harwood	July 19	Sept. 5	Nov. 5	Buff Bronze	3.50
Nomago	July 19	Sept. 5	Nov. 5	Buff Bronze	5.00
Mamoru	July 19	Sept. 5	Nov. 5	Buff Bronze	3.00
Rayonnante	July 19	Sept. 5	Nov. 5	Pink	3.25
Peggy Ann Hoover	July 22	Sept. 8	Nov. 10	Pink	3.50
11-WEEK VARIETY					
Lorraine	July 25	Sept. 10	Nov. 15	Yellow	4.00

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Pompon and Decorative Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
YELLOW				
9-WEEK VARIETIES				
Golden Herald	July 10	Oct. 25	Golden Yellow; L. Decorative	\$3.00
Gold Coast	July 10	Oct. 25	Int. Pompon	2.50
Yellow Dot	July 10	Oct. 25	Int. Pompon	2.75
Sunup	July 12	Oct. 28	Small Pompon	5.00
Yellow Arcadia	July 12	Oct. 28	Sport of Arcadia	2.75
Mary L. Hall	July 16	Nov. 1	Deep Yellow; Int. Pompon	2.50
*Yellow Doty	July 16	Nov. 1	Buff Yellow—Large Pompon	2.75
Yellow Sea Gull	July 16	Nov. 1	Light Yellow Sport of Sea Gull	2.75
Yellow Cassandra	July 16	Nov. 1	Sport of Cassandra	4.00
10-WEEK VARIETIES				
Barcarole	July 19	Nov. 5	Int. Pompon	2.75
Crescendo	July 19	Nov. 5	Large Pompon	4.50
Constellation	July 19	Nov. 5	Int. Decorative	3.00
Pixie	July 19	Nov. 5	Small Pompon	3.25
Nuggets	July 19	Nov. 5	Small Pompon	2.50
11-WEEK VARIETIES				
Princeton	July 25	Nov. 15	Int. Decorative	3.25
Golden Chord	July 25	Nov. 15	Golden Yellow; Int. Pompon	4.00
Tally-Ho	July 25	Nov. 15	Int. Formal Pompon	3.50
Forty-Niner	July 25	Nov. 15	Int. Formal Pompon	4.00
Yellow Fellow	July 25	Nov. 15	Int. Decorative	2.75
Illini Brave	July 25	Nov. 16	Small Pompon	4.00
Lollipop	July 29	Nov. 20	Int. Pompon	4.50
Pippin	July 29	Nov. 20	Int. Pompon	5.00
Klondike	July 29	Nov. 20	Orange Yellow; Int. Pompon	4.50
12-WEEK VARIETIES				
Goldenrod	Aug. 1	Nov. 25	Int. Pompon	5.00
Illini Gold	Aug. 1	Nov. 25	Deep Golden Yellow; Int. Pompon	3.25
*Goldsmith	Aug. 1	Nov. 25	Large Decorative	3.25
Highlander	Aug. 1	Nov. 25	Int. Formal Decorative	5.00
Sunnyside	Aug. 1	Nov. 25	Int. Pompon	2.75
Yellow Cordova	Aug. 4	Nov. 30	Sport of Cordova	2.75
Omega	Aug. 6	Dec. 1	Int. Pompon	3.00
Nosegay	Aug. 6	Dec. 1	Small Pompon	5.00
13-WEEK VARIETIES				
Golden Harvest	Aug. 8	Dec. 5	Deep Gold; Small Pompon	4.00
Brandywine	Aug. 8	Dec. 5	Orange Yellow; Int. Decorative	5.00
Jack-Pot	Aug. 8	Dec. 5	Golden Yellow; L. Decorative	5.00
Symmetry	Aug. 8	Dec. 5	Int. Pompon	5.00
Yellow Cameo	Aug. 8	Dec. 5	Sport of Cameo	3.00
Corsair	Aug. 12	Dec. 12	Large Semi-Formal Pompon	5.00
14-WEEK VARIETIES				
Yellow Riviera	Aug. 14	Dec. 15	Golden Yellow; Sport of Riviera	4.00
Yellow Snowcrest	Aug. 14	Dec. 15	Sport of Snowcrest	5.00
Sequin	Aug. 14	Dec. 15	Small Pompon	4.50
Shamrock	Aug. 14	Dec. 15	Large Decorative	4.50
December Gold	Aug. 14	Dec. 15	Golden Yel.; Int. Decorative	3.00
Vibrant	Aug. 18	Dec. 20	Int. Decorative	3.00
Revelry	Aug. 18	Dec. 20	Int. Decorative	5.00
Sunrise	Aug. 18	Dec. 20	Int. Pompon	5.00
Golden Anniversary	Aug. 20	Dec. 25	Small Pompon	3.50
Siren	Aug. 20	Dec. 25	Int. Decorative	4.50
Yuleflame	Aug. 20	Dec. 25	Large Decorative	3.50
Yellow Snow	Aug. 20	Dec. 25	Sport of Snow	2.75

*Responds to Disbudding.

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Pompon and Decorative Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
WHITE				
8-WEEK VARIETIES				
Irene	July 4	Oct. 15	Small Pompon	\$2.75
Norona	July 4	Oct. 15	Small Pompon	5.00
Pristine	July 8	Oct. 20	Pure White; Int. Pompon	4.00
Minong	July 8	Oct. 20	Small Pompon	2.50
9-WEEK VARIETIES				
Popcorn	July 10	Oct. 25	Int. Pompon	4.00
White Popcorn	July 10	Oct. 25	Cream White Sport of Popcorn	5.00
Keepsake	July 10	Oct. 25	Cream White; Int. Pompon	5.00
Pinocchio	July 10	Oct. 25	Small Pompon	2.75
Songster	July 10	Oct. 25	Int. Pompon	4.50
Cottontop	July 10	Oct. 25	Small Pompon	3.00
Arcadia	July 12	Oct. 28	Int. Pompon	2.75
Sea Gull	July 16	Nov. 1	Ivory White; Int. Pompon	2.75
*White Doty	July 16	Nov. 1	Large Pompon	2.75
10-WEEK VARIETIES				
Madonna	July 19	Nov. 5	Int. Pompon	5.00
Encore	July 19	Nov. 5	Pure White; Int. Pompon	4.00
Rev. Bushnell	July 21	Nov. 8	Int. Formal Pompon	3.25
Moonglow	July 21	Nov. 8	Int. Pompon	4.00
Dynamo	July 22	Nov. 10	Int. Pompon	5.00
Vesper	July 22	Nov. 10	Int. Pompon	2.75
Illini Snowdrift	July 23	Nov. 12	Novelty—Int. Decorative	4.00
Matchless	July 23	Nov. 12	Int. Pompon	3.00
11-WEEK VARIETIES				
Lakme	July 25	Nov. 15	Green Eye; Small Pompon	3.50
Snowflurry	July 25	Nov. 15	Small Pompon	4.50
Seafoam	July 29	Nov. 20	Int. Pompon	2.75
Highbrow	July 29	Nov. 20	Ivory White; Int. Decorative	4.50
*Priscilla	July 29	Nov. 20	Int. Pompon	3.00
Illini Bountiful	July 31	Nov. 23	Int. Decorative	4.00
Crystal Beauty	July 31	Nov. 23	Int. Pompon	4.00
Paramount	July 31	Nov. 23	Int. Pompon	4.50
12-WEEK VARIETIES				
Cordova	Aug. 4	Nov. 30	Cream White; Int. Decorative	2.75
*Belray	Aug. 4	Nov. 30	Large Pompon	4.50
Fortune	Aug. 6	Dec. 1	Int. Formal Pompon	4.50
Monarch	Aug. 6	Dec. 1	Ivory White; L. Decorative	5.00
13-WEEK VARIETIES				
Ivory Cameo	Aug. 8	Dec. 5	Cream Sport of Cameo	3.50
Cameo	Aug. 8	Dec. 5	Ivory White; Int. Dec.	3.00
Acclaim	Aug. 8	Dec. 5	Large Formal Pompon	5.00
Spangles	Aug. 8	Dec. 5	Int. Pompon	4.50
Cotillion	Aug. 8	Dec. 5	Int. Semi-Formal Pompon	5.00
Snowdrop	Aug. 10	Dec. 8	Small Pompon	5.00
Snow Queen	Aug. 12	Dec. 10	Int. Formal Pompon	5.00
14-WEEK VARIETIES				
Snowcrest	Aug. 15	Dec. 15	Green Eye; Small Pompon	4.00
*Silversmith	Aug. 15	Dec. 15	Int. Decorative	4.00
Snowcap	Aug. 15	Dec. 15	Large Formal Pompon	4.00
Satellite	Aug. 15	Dec. 15	Ivory White; Int. Formal Pompon	5.00
Heirloom	Aug. 18	Dec. 20	Int. Decorative	4.50
Revelation	Aug. 20	Dec. 25	Int. Decorative	2.50
Snow	Aug. 20	Dec. 25	Int. Pompon	2.75

*Responds to Disbudding.

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES

Pompon and Decorative Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
BRONZE and RED				
8-WEEK VARIETIES				
Robinhue	July 4	Oct. 15	Red; Int. Decorative	\$4.50
Cocktail	July 4	Oct. 15	Salmon Orange; Int. Pompon	5.00
Detroit	July 4	Oct. 15	Reddish Bronze; Small Pompon	4.00
James Stewart	July 4	Oct. 15	Apricot Gold; Small Pompon	4.50
9-WEEK VARIETIES				
Firebird	July 10	Oct. 25	Reddish Bronze; Int. Dec.	2.75
Bronze Dot	July 10	Oct. 25	Sport of Pink Dot	2.75
Seneca	July 16	Nov. 1	Orange Red; Int. Dec.	3.25
Firefly	July 16	Nov. 1	Orange Red; Int. Pompon	4.50
Red Seneca	July 16	Nov. 1	Red Sport of Seneca	4.00
Navaho	July 16	Nov. 1	Red; Int. Pompon	3.00
10-WEEK VARIETIES				
Beauregard	July 19	Nov. 5	Reddish Orange; Int. Pompon	4.50
Butterscotch	July 19	Nov. 5	Golden Bronze; Int. Pompon	4.00
Cassandra	July 19	Nov. 5	Orange Bronze; Int. Pompon	3.00
Red Rust	July 19	Nov. 5	Reddish Bronze; Int. Dec.	3.00
Rubicon	July 19	Nov. 5	Bronze Red; Int. Dec.	4.00
* Magician	July 19	Nov. 5	Bronze; L. Pompon	4.50
Samovar	July 22	Nov. 10	Reddish Bronze; Int. Pompon	4.00
Chanticleer	July 22	Nov. 10	Reddish Bronze; L. Pompon	4.50
Chevron	July 22	Nov. 10	Red Orange; Int. Dec.	4.50
* Bronze Thyra	July 22	Nov. 10	Sport of Thyra	4.00
Illini Burma	July 22	Nov. 10	Light Bronze; L. Pompon	5.00
* Copperhead	July 22	Nov. 10	Coppery Bronze; L. Dec.	4.50
Gold Braid	July 23	Nov. 12	Yel. Bronze-Red Center; Int. Pom.	5.00
Illini Rye	July 23	Nov. 12	Straw Color; Int. Pompon	5.00
* Bronze Masterpiece	July 23	Nov. 12	Sport of Masterpiece	2.75
* Dark Bronze Masterpiece	July 23	Nov. 12	Sport of Br. Masterpiece	4.00
* Paragon	July 23	Nov. 12	Red; L. Pompon	4.50
11-WEEK VARIETIES				
Red Princeton	July 25	Nov. 15	Brazil Red; Sport of Princeton	3.25
Bronze Princeton	July 25	Nov. 15	Bronze Sport of Princeton	3.25
Illini Redhead	July 27	Nov. 17	Deep Red; Small Pompon	4.00
Illini Warrior	July 29	Nov. 20	Bronzy Orange; Small Pompon	4.00
Legal Tender	July 29	Nov. 20	Bronze and Gold—Int. Dec.	2.50
Rusticon	July 29	Nov. 20	Rust Red; Int. Pompon	3.00
Thelma	July 29	Nov. 20	Orange Scarlet; Int. Pompon	5.00
Bronze Minuet	July 31	Nov. 23	Sport of Minuet	3.50
12-WEEK VARIETIES				
* Bronze Goldsmith	Aug. 1	Nov. 25	Mars Orange; Int. Decorative	3.25
Falcon	Aug. 1	Nov. 25	Reddish Bronze; Int. Pompon	4.50
Amberina	Aug. 6	Dec. 1	Orange Bronze; Int. Decorative	5.00
13-WEEK VARIETIES				
Debonair	Aug. 8	Dec. 5	Crimson Red; L. Pompon	3.00
Harlequin	Aug. 12	Dec. 10	Crimson Red; Int. Decorative	5.00
Pageantry	Aug. 12	Dec. 10	Red; Int. Pompon	4.50
* Bronze Minstrel	Aug. 13	Dec. 13	Sport of Minstrel	4.00
14-WEEK VARIETIES				
Bronze Riviera	Aug. 15	Dec. 15	Sport of Riviera	4.00
Christmas Greeting	Aug. 15	Dec. 15	Crimson Scarlet; Int. Dec.	4.50

*Responds to Disbudding.

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Pompon and Decorative Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
PINK				
8-WEEK VARIETIES				
Jewell	July 4	Oct. 15	Lavender; Small Pompon	\$3.00
Carolyn Yosick	July 8	Oct. 20	Lavender; Small Decorative	3.00
Pink Sprite	July 10	Oct. 23	Small Pompon	4.00
Mary McArthur	July 10	Oct. 23	Small Pompon	3.50
9-WEEK VARIETIES				
Edith Roberts	July 10	Oct. 25	Light Orchid Pink; Small Pompon	3.50
Pink Dot	July 10	Oct. 25	Int. Pompon	2.75
Jessie	July 10	Oct. 25	Lavender; Int. Pompon	2.75
Lillian Doty	July 16	Nov. 1	Rose Pink; L. Pompon	2.75
10-WEEK VARIETIES				
Dreamboat	July 19	Nov. 5	Lavender Pink; Int. Pompon	3.00
Dark Bulkeley	July 21	Nov. 8	Int. Formal Pompon	3.25
Pandora	July 22	Nov. 10	Luminous Pink; L. Decorative	5.00
Thyra	July 22	Nov. 10	Int. Formal Pompon	3.00
*Masterpiece	July 23	Nov. 12	Int. Pompon	2.75
*Rose Masterpiece	July 23	Nov. 12	Rose Pink Sport of Masterpiece	3.50
*Salmon Masterpiece	July 23	Nov. 12	Salmon Pink Sport of Masterpiece	3.50
Taffeta	July 23	Nov. 12	Int. Decorative	4.50
11-WEEK VARIETIES				
*Vivacious Lady	July 29	Nov. 20	Spoon Type Novelty	5.00
Pinky	July 29	Nov. 20	Int. Decorative	4.50
Minuet	July 31	Nov. 23	Int. Pompon	3.00
12-WEEK VARIETIES				
Princess	Aug. 1	Nov. 25	Small Pompon	5.00
Heritage	Aug. 6	Dec. 1	Dark Pink; L. Formal Pompon	5.00
13-WEEK VARIETY				
*Minstrel	Aug. 13	Dec. 13	Int. Formal Pompon	3.50
14-WEEK VARIETIES				
Riviera	Aug. 15	Dec. 15	Luminous Pink; Int. Dec.	3.00
Defiance	Aug. 18	Dec. 20	Int. Decorative	4.00
Medallion	Aug. 18	Dec. 20	Int. Pompon	4.50

*Responds to Disbudding.

THIS TABLE INDICATES PRICES FOR MORE
THAN 50 OF A VARIETY PER SHIPMENT

Per 50			Per 100		
50	100-250	300-450	500-950	1000-2450	2500 Up
\$2.50	\$4.75	\$4.50	\$4.25	\$4.00	\$3.75
2.75	5.20	4.95	4.65	4.40	4.10
3.00	5.70	5.40	5.10	4.80	4.50
3.25	6.15	5.85	5.50	5.20	4.85
3.50	6.65	6.30	5.95	5.60	5.25
4.00	7.60	7.20	6.80	6.40	6.00
4.50	8.55	8.10	7.65	7.20	6.75
5.00	9.50	9.00	8.50	8.00	7.50
6.25	12.00	11.50	11.00	10.50	10.00
7.50	14.50	14.00	13.50	13.00	12.50

Single-Daisy Type Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
YELLOW				
9-WEEK VARIETIES				
Sch. Yellow Daisy.....	July 16	Nov. 1	Intermediate	\$4.00
*Starbright.....	July 16	Nov. 1	Deep Yellow; Large	4.00
Yellow Daisy.....	July 16	Nov. 1	Intermediate	3.00
10-WEEK VARIETIES				
Brigadoon.....	July 19	Nov. 5	Intermediate	5.00
*Golden Mensa.....	July 19	Nov. 5	Sport of White Mensa	3.00
*Mason's Yellow.....	July 22	Nov. 10	Large	3.25
11-WEEK VARIETIES				
Thorobred.....	July 25	Nov. 15	Large	5.00
Bojangles.....	July 29	Nov. 20	Intermediate	4.50
12-WEEK VARIETIES				
Champagne.....	Aug. 1	Nov. 25	Intermediate	4.00
*Yellow Valencia.....	Aug. 3	Nov. 28	Sport of Valencia	3.00
13-WEEK VARIETIES				
Cinderella.....	Aug. 8	Dec. 5	Intermediate	4.00
Goldtone.....	Aug. 8	Dec. 5	Intermediate	4.50
Challenge.....	Aug. 12	Dec. 12	Intermediate	4.50
WHITE				
9-WEEK VARIETY				
Halo.....	July 16	Nov. 1	Ivory White; Intermediate	4.50
10-WEEK VARIETIES				
Kolowa.....	July 19	Nov. 5	Intermediate	4.50
*White Mensa.....	July 19	Nov. 5	Large	3.00
Shasta Daisy.....	July 22	Nov. 10	Intermediate; Sport of Shasta	2.75
11-WEEK VARIETIES				
Sculpture.....	July 25	Nov. 15	Ivory White; Large	5.00
Eskimo.....	July 25	Nov. 15	Intermediate	5.00
12-WEEK VARIETY				
*White Valencia.....	Aug. 3	Nov. 28	Sport of Valencia	4.00
13-WEEK VARIETY				
Yukon.....	Aug. 12	Dec. 10	Intermediate	2.75
BRONZE and RED				
8-WEEK VARIETY				
Rajah.....	July 4	Oct. 15	Scarlet Red; Intermediate	5.00
9-WEEK VARIETIES				
Buckskin.....	July 10	Oct. 25	Tawny Bronze; Small	4.50
Bronze Daisy.....	July 16	Nov. 1	Light Bronze Sport of Yel. Daisy	3.00
Buccaneer.....	July 16	Nov. 1	Orange Apricot; Intermediate	5.00
Red Daisy.....	July 16	Nov. 1	Red; Intermediate	3.25
10-WEEK VARIETIES				
Bittersweet.....	July 19	Nov. 5	Bittersweet Red; Intermediate	3.00
Sylvanna.....	July 22	Nov. 10	Reddish Orange; Intermediate	3.00
*Mason's Bronze.....	July 22	Nov. 10	Burnt Orange; Large	3.25
*Mason's Red.....	July 22	Nov. 10	Scarlet; Large	3.25
*Europa.....	July 22	Nov. 10	Cardinal Red; Large	4.00
11-WEEK VARIETIES				
Mrs. Dewey.....	July 25	Nov. 15	Deep Bronze; Large	4.50
Bourbon.....	July 29	Nov. 20	Rust Bronze; Intermediate	4.00
Carousel.....	July 31	Nov. 23	Coral Bronze; Intermediate	4.50
Festival.....	July 31	Nov. 23	Apricot Red; Small	4.00
12-WEEK VARIETIES				
Indian Head.....	Aug. 3	Nov. 28	Reddish Apricot; Intermediate	4.50
*Apricot Valencia.....	Aug. 3	Nov. 28	Sport of Valencia	3.00
*Crimson Valencia.....	Aug. 3	Nov. 28	Sport of Valencia	4.00
Galaxy.....	Aug. 6	Dec. 1	Orange Scarlet; Intermediate	4.00
13-WEEK VARIETIES				
Mahogany Viking.....	Aug. 8	Dec. 5	Mahogany Bronze; Intermediate	3.50
Holiday.....	Aug. 12	Dec. 10	Crimson Red; Intermediate	4.00
Christmas Star.....	Aug. 12	Dec. 12	Scarlet Red; Intermediate	3.50
14-WEEK VARIETIES				
Claref.....	Aug. 14	Dec. 15	Brilliant Red; Intermediate	5.00
Topaz.....	Aug. 14	Dec. 15	Orange Bronze; Intermediate	5.00
Sarong.....	Aug. 14	Dec. 15	Crimson; Intermediate	3.25
Merrymaker.....	Aug. 18	Dec. 20	Scarlet Red; Intermediate	4.00
Poinsettia.....	Aug. 18	Dec. 20	Scarlet Red; Large	5.00

*Responds to Disbudding.

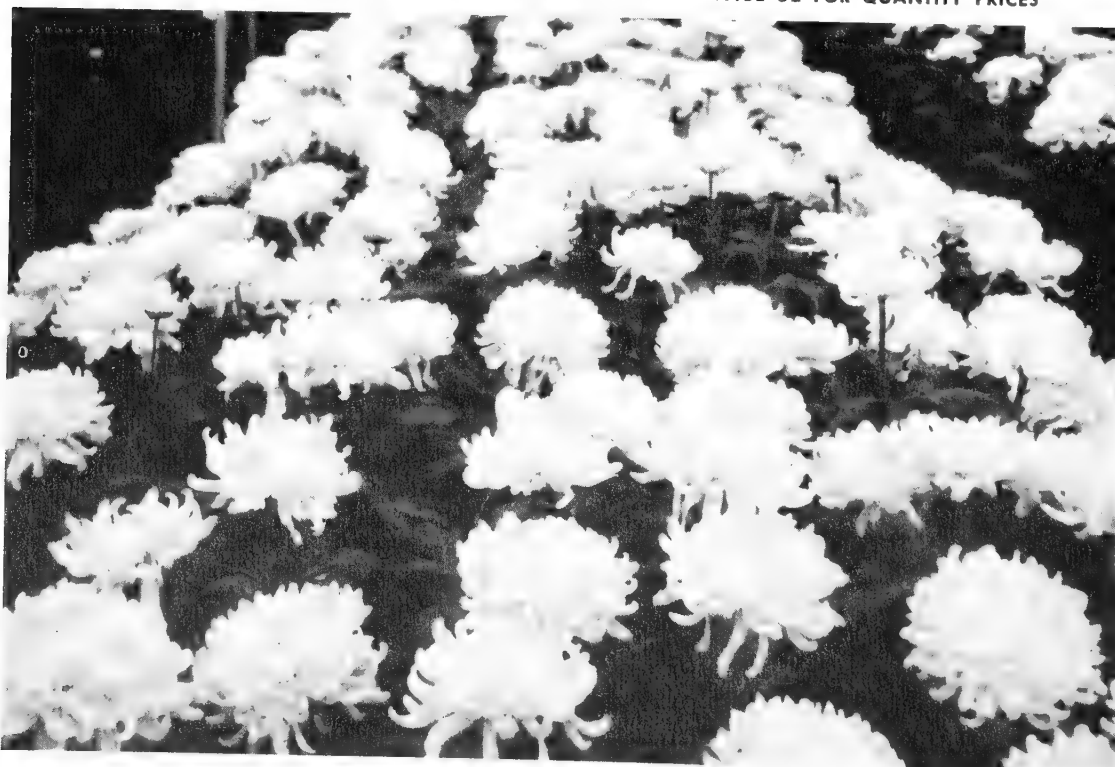
MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Single-Daisy Type Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
PINK				
9-WEEK VARIETIES				
Reward	July 10	Oct. 25	Intermediate	\$4.50
October Pink	July 10	Oct. 25	Intermediate	3.25
Pink Calif. Daisy	July 16	Nov. 1	Intermediate	3.50
Ballerina	July 16	Nov. 1	Intermediate	4.00
10-WEEK VARIETY				
Soprano	July 22	Nov. 10	Intermediate	4.00
11-WEEK VARIETIES				
Mermaid	July 25	Nov. 15	Intermediate	5.00
Brocade	July 25	Nov. 15	Shell Pink; Intermediate	2.75
Grand Slam	July 29	Nov. 20	Silvery Shell Pink; Large	5.00
12-WEEK VARIETIES				
*Valencia	Aug. 3	Nov. 28	Orchid Pink; Large	3.00
*Dark Valencia	Aug. 3	Nov. 28	Deep Pink Sport of Valencia	3.00
*Salmon Valencia	Aug. 3	Nov. 28	Salmon Pink Sport of Valencia	5.00
*Orchid Valencia	Aug. 3	Nov. 28	Deep Orchid Sport of Valencia	5.00
13-WEEK VARIETIES				
Debutante	Aug. 12	Dec. 10	Large	4.50
14-WEEK VARIETIES				
Coronet	Aug. 14	Dec. 15	Dark Pink; Intermediate	4.50
Rosalind	Aug. 18	Dec. 20	Intermediate	2.75

*Responds to Disbudding.

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES



Bed of Good News Supported with One Layer of Wire and Cross Strings.

Anemone Varieties

Name	Last Pinch	Flowering Date	Description	Price 50 Only
YELLOW				
9-WEEK VARIETY				
Sunray	July 17	Nov. 3	Intermediate	\$2.50
10-WEEK VARIETY				
Yellow Shasta	July 22	Nov. 10	Sport of Shasta	2.75
11-WEEK VARIETIES				
*Susanne Miller	July 25	Nov. 15	Large	3.25
*Yellow L. I. Beauty	July 29	Nov. 20	Sport of L. I. Beauty	4.00
Yellow Nevada	July 29	Nov. 20	Sport of Nevada	3.00
13-WEEK VARIETIES				
*Yellow Swan	Aug. 8	Dec. 5	Sport of Swan	3.50
*Yellow Supreme	Aug. 12	Dec. 10	Large	3.25
WHITE				
10-WEEK VARIETIES				
*White Anemone	July 19	Nov. 5	Large	3.25
Shasta	July 22	Nov. 10	Intermediate	2.75
Little America	July 22	Nov. 10	Pure White; Intermediate	2.50
11-WEEK VARIETIES				
*White Norma	July 25	Nov. 15	Sport of Norma	3.25
*L. I. Beauty	July 29	Nov. 20	Yellow Cushion; Large	2.50
Nevada	July 29	Nov. 20	Green Cushion; Intermediate	3.00
13-WEEK VARIETIES				
*Swan	Aug. 8	Dec. 5	Large	3.50
*White Supreme	Aug. 12	Dec. 10	Large	3.25
14-WEEK VARIETY				
Garza	Aug. 14	Dec. 15	Intermediate	3.00
BRONZE and RED				
10-WEEK VARIETIES				
*The Titan	July 22	Nov. 10	Red; Large	3.25
Bronze Linda Lou	July 22	Nov. 10	Sport of Linda Lou	4.00
*Bronze Tuxedo	July 22	Nov. 10	Large; Sport of Tuxedo	3.25
11-WEEK VARIETIES				
Shalimar	July 25	Nov. 15	Orange Bronze; Intermediate	5.00
*Red Rolinda	July 31	Nov. 23	Red; Intermediate	3.00
13-WEEK VARIETIES				
Dazzler	Aug. 8	Dec. 5	Coppery Bronze; Partial Anemone	5.00
*Red Supreme	Aug. 12	Dec. 10	Sport of Dk. Pk. Supreme	4.00
PINK				
9-WEEK VARIETY				
*Betty Rose	July 10	Oct. 25	Lavender; Large	3.25
10-WEEK VARIETIES				
Lulabel	July 22	Nov. 10	Yellow Cushion; Intermediate	3.50
Linda Lou	July 22	Nov. 10	Yellow Cushion; Intermediate	2.75
Dark Linda Lou	July 22	Nov. 10	Sport of Linda Lou	2.75
*Tuxedo	July 22	Nov. 10	Large	3.25
Memorial	July 23	Nov. 12	Intermediate	5.00
11-WEEK VARIETIES				
Dark Norma	July 25	Nov. 15	Deep Lavender; Large	3.25
Orchid Beauty	July 25	Nov. 15	Golden Cushion; Intermediate	2.75
*Pink L. I. Beauty	July 29	Nov. 20	Light Pink Sport of L. I. Beauty	4.00
Majorette	July 29	Nov. 20	Intermediate	4.50
12-WEEK VARIETY				
*Beautiful Lady	Aug. 1	Nov. 25	Lavender; Large	3.00
13-WEEK VARIETIES				
*Enchantress	Aug. 8	Dec. 5	Large	3.25
*Dark Enchantress	Aug. 8	Dec. 5	Sport of Enchantress	4.00
*Dark Pink Supreme	Aug. 12	Dec. 10	Lavender; Large	3.25
*Ruffled Supreme	Aug. 12	Dec. 10	Sport of Dk. Pk. Supreme	3.25

*Responds to Disbudding.

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Pot Plant Varieties

Name	Last Pinch	Spray or Disbud	Flowering Date	Type	Price 50 Only
YELLOW					
8-WEEK VARIETIES					
Gold Lode	Aug. 24	Disbud	Oct. 15	L.F. Dec.	\$2.75
Mrs. H. E. Kidder	Aug. 29	Disbud	Oct. 20	L.F. Inc.	2.50
Blazing Gold	Aug. 29	Disbud	Oct. 23	L.F. Inc.	3.00
9-WEEK VARIETIES					
Smith's Superlative	Aug. 29	Disbud	Oct. 25	L.F. Inc.	3.25
Yellow Bergen	Aug. 29	Disbud	Oct. 25	L.F. Inc.	3.25
Sunglow	Aug. 29	Disbud	Oct. 25	L.F. Inc.	2.50
Golden Glory	Sept. 1	Disbud	Nov. 1	L.F. Inc.	3.25
Yellow Lace	Sept. 10	Disbud	Nov. 1	Spider	4.00
10-WEEK VARIETIES					
Dark Indianapolis Yellow	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.50
Indianapolis Yellow	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.00
Yellow Beauty	Sept. 1	Disbud	Nov. 10	L.F. Inc.	3.25
Honey Dew	Sept. 5	Disbud	Nov. 12	L.F. Inc.	3.25
11-WEEK VARIETIES					
Bonaffon Deluxe	Sept. 5	Disbud	Nov. 20	L.F. Inc.	2.50
Friendly Rival	Sept. 5	Disbud	Nov. 20	L.F. Inc.	3.00
Marie DePetris	Sept. 5	Disbud	Nov. 23	L.F. Inc.	3.00
12-WEEK VARIETIES					
Sungold	Sept. 10	Disbud	Nov. 25	L.F. Inc.	3.00
Yellow Moeller	Sept. 15	Disbud	Dec. 3	L.F. Inc.	3.50
WHITE					
8-WEEK VARIETY					
Christina	Aug. 29	Disbud	Oct. 23	L.F. Inc.	3.50
9-WEEK VARIETIES					
Granite State	Aug. 24	Disbud	Oct. 25	L.F. Inc.	2.75
Queen's Lace	Sept. 10	Disbud	Nov. 1	Spider	4.00
Wilson's White	Sept. 1	Disbud	Nov. 1	L.F. Inc.	5.00
10-WEEK VARIETIES					
Indianapolis White	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.00
Richard Mandel	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.00
Little America	Sept. 1	Disbud	Nov. 10	Int. Anem.	2.50
11-WEEK VARIETIES					
Marketeer	Sept. 5	Disbud	Nov. 18	L.F. Inc.	3.00
Long Island Beauty	Sept. 5	Disbud	Nov. 20	L. Anem.	2.50
White Frick	Sept. 5	Disbud	Nov. 20	L.F. Inc.	3.00
12-WEEK VARIETY					
Margaret Moeller	Sept. 15	Disbud	Dec. 3	L.F. Inc.	3.00
BRONZE and RED					
9-WEEK VARIETIES					
Hilda Bergen	Aug. 29	Disbud	Oct. 25	L.F. Inc.	3.25
Glitters	Sept. 1	Disbud	Oct. 28	L.F. Dec.	3.25
Apricot Queen	Sept. 1	Disbud	Nov. 1	L.F. Inc.	3.25
10-WEEK VARIETIES					
Indianapolis Bronze	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.00
Indianapolis Golden Bronze	Sept. 1	Disbud	Nov. 5	Quilled	5.00
Gypsy	Sept. 1	Spray	Nov. 8	Int. Anem.	2.75
Copperhead	Sept. 1	Disbud	Nov. 10	L. Pom.	4.50
Dark Bronze Masterpiece	Sept. 1	Disbud	Nov. 12	L. Pom.	4.00
11-WEEK VARIETIES					
Shalimar	Sept. 5	Spray	Nov. 15	Int. Anem.	5.00
Red Rolinda	Sept. 10	Disbud	Nov. 23	Int. Anem.	3.00
PINK					
10-WEEK VARIETIES					
Indianapolis Pink	Sept. 1	Disbud	Nov. 5	L.F. Inc.	3.00
Thyra	Sept. 1	Disbud	Nov. 10	Int. Pom.	3.00
Queen of Pinks	Sept. 1	Disbud	Nov. 10	L. Pom.	2.75
Masterpiece	Sept. 1	Disbud	Nov. 12	L. Pom.	2.75
11-WEEK VARIETIES					
Helen Frick	Sept. 5	Disbud	Nov. 20	L.F. Inc.	3.00
Majorette	Sept. 5	Spray	Nov. 20	Int. Anem.	4.50
12-WEEK VARIETY					
Beautiful Lady	Sept. 5	Disbud	Nov. 25	L. Anem.	3.00

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

New Introductions—Garden Varieties

WHITE

LYRIC—Pure white intermediate daisy. Short compact habit; very uniform and showy. Very durable. An excellent early pot plant or fine dwarf garden type. Oct. 5.

HORIZON—Pure white intermediate pompon. Stronger plant than White Wonder. Whiter and more double than Chris. Columbus. Larger, showier than Classic. An important early cut flower or landscape variety. October 5.

YELLOW

MOONLIGHT—Vivid soft yellow formal decorative about 3 inches across. A very full solid flower with excellent lasting qualities. A free growing variety which may be grown into compact plants by pinching or allowed to grow into a cutting variety. Good stems and foliage. Begins blooming by mid-September, in full bloom by the end of September.

GARLAND—Intermediate yellow daisy. Compact vigorous growth. Garland has an exceptionally durable flower. A good early pot plant well adapted to gardens. Oct. 5.

TREASURE—Small yellow pompon. Vigorous, upright habit. Fine cut flower growth. Flower is a small version of Gold Coast and very durable. Oct. 10.

NYTODA—Good sized duplex daisy with excellent substance. Color golden Apricot. Makes good sprays on strong stems 30" to 36". Matures October 12th. An excellent daisy with healthy growth and fairly good production. A good cutting variety.

PINK

ENTERPRISE—Rich amaranth pink, solid pink pompon suitable for cutting. Good stem and foliage. Medium tall growth. Blooms the first week in October.

COURTIER—Lavender pink decorative. Garden type, compact growth. Beautiful color and form. A Spell-bound that is very frost resistant.

LASSIE—Large dark pink decorative similar in size and form to Lavender Lady. A strong, upright habit well suited for cutting. Holds well on the plant. Oct. 10.

ELIZABETH HOOD—Vivid lavender pink, large full pompon with excellent substance and spray formation. Excellent strong stems 30" to 36" long of vigorous growth with very healthy habit and lush foliage. Matures October 12th. A very fine and productive variety. Excellent for cutting or for pots.

BRONZE AND RED

MOGUL—Vivid orange rust full decorative of medium size. Vigorous upright growth with strong stems and pedicles. Blooms the end of September and early October.

AVALON—Formal pompon of glowing bronze color. Good stems and foliage with upright growth. Blooms the first week in October. Resembles Mme. Chiang Kai Shek in color with an improved growth habit and blooms one week later.

BRIGADIER—Large carmine red pompon. Solid blooms of decorative form. Good bushy growth and excellent foliage. Stems strong 20" to 24". Matures October 1st. A nice lively color and quite early. Recommended for garden.

FIRECRACKER—Mahogany bronze decorative close to burnt orange. Tall, cut flower growth. The flower holds color well and is quite frost resistant. October 5.

PANORAMA—Dazzling orange rust, small decorative 36" to 39". Small glossy foliage. Matures October 8th, of upright growth habit and fairly good for cutting.

BLUEBLOOD—Deep amaranth red decorative. Vigorous cut flower growth. Color strongly resembles that of the old variety Burgundy. Oct. 10.

CARAVAN—Large salmon bronze decorative, garden type compact rugged growth. Has all the good qualities of Mrs. DuPont, with a strikingly new and useful color. Oct. 10.

ADMIRAL—Dark crimson red decorative. Plant is more vigorous and productive than Red Velvet; color is deeper and holds well. Oct. 12.

COCKTAIL—Salmon orange POMPON—a beautiful color. Growth is slow, variety attains medium height. A new color and distinctive form. A cut flower variety. Oct. 15.

RAJAH—Large scarlet red DAISY. Very fine as cut flower. Holds color well in the field or early cloth house. Excels Red Daisy in color and growth habit. Oct. 15.

COMBINATION OFFERS

For growers who are not familiar with Garden Varieties, but who want a well balanced assortment, we offer the following collections, which include the better varieties.

SPECIAL No. 1

500 Rooted Cuttings

Our selection

50 each of ten taller varieties for cutting

\$25.00

SPECIAL No. 2

500 Rooted Cuttings

Our selection for pots or bedding

50 each ten varieties

\$25.00

SPECIAL No. 3

500 Rooted Cuttings

Our selection

50 each of five varieties for cutting

50 each of five varieties for bedding

\$25.00

SPECIAL No. 4

500 Rooted Cuttings

Our selection for Mothers' Day blooming

\$25.00

PINCHING SCHEDULE FOR GARDEN CHRYSANTHEMUMS

Natural
Flowering Date

Sept. 1
Sept. 15
Sept. 30
Oct. 10
Oct. 15

Pinching Date
for Cut Flowers

June 7
June 14
June 24
June 30
July 4

Pinching Date
for Border Plants

June 28
July 5
July 15
July 21
July 25

Garden or Hardy Chrysanthemums

SYMBOLS — (L) Large — (D) Decorative — (P) Pom — (C) Cushion — (S) Single — (B) Button

Variety	Type	Color	Height	Matures	Price 50 Only
WHITE					
Candlelight.....	(D)	Ivory	Med.	Sept. 5	\$3.00
White Cushion.....	(C)	White	Short	Sept. 8	2.75
D.D. Ahrens.....	(D)	White	Tall	Sept. 10	3.00
Paper White.....	(D)	White	Med.	Sept. 10	4.50
*Chris Columbus.....	(LD)	Cream	Tall	Sept. 15	3.00
*Calcite.....	(D)	Cream	Med.	Sept. 15	3.00
Drifted Snow.....	(D)	Cream	Med.	Sept. 15	3.00
Polar Ice.....	(LD)	White	Med.	Sept. 15	3.50
White Bounty.....	(B)	Wh. Yel. Ctr.	Tall	Sept. 15	3.50
White Tower.....	(LP)	Cream	Tall	Sept. 15	4.00
*White Wonder.....	(LP)	Ivory	Med.	Sept. 25	3.00
Shalimar (H).....	(LP)	Cream	Tall	Sept. 25	5.00
White Cloud.....	(D)	White	Tall	Sept. 25	3.00
Morning Star.....	(D)	Dp. Cream	Med.	Sept. 25	3.00
Misty Maid.....	(D)	White	Med.	Sept. 28	7.50
*Pepita.....	(B)	Shell White	Med.	Sept. 29	3.50
Snow Fall.....	(D)	Wh. Cr. Ctr.	Med.	Sept. 29	3.50
Ermine.....	(LD)	Ivory	Med.	Oct. 1	4.50
Winterset (H).....	(LD)	Snow Wh.	Med.	Oct. 1	3.25
*Avalanche.....	(LD)	Cream	Tall	Oct. 5	3.25
Fragrant.....	(D)	White	Tall	Oct. 5	3.25
Youdath's White.....	(LD)	White	Med.	Oct. 5	2.75
Monogram.....	(S)	White	Short	Oct. 5	4.50
Lyric (New).....	(S)	White	Short	Oct. 5	5.00
Horizon (New).....	(P)	White	Med.	Oct. 5	5.00
Perfection.....	(L-Inc)	Cream	Tall	Oct. 10	4.00
Mrs. Fischer.....	(P)	White	Tall	Oct. 10	2.75
*Classic.....	(B)	White	Tall	Oct. 10	4.50
*Renown.....	(S)	White	Med.	Oct. 10	4.50
Maestro (New).....	(P)	White	Short	Oct. 10	4.50
White Spoon.....	(Spoon)	White	Med.	Oct. 10	2.75
*Silver Plate.....	(D)	White	Med.	Oct. 12	4.50
Model O'Perfection.....	(B)	Wh. Cr. Ctr.	Tall	Oct. 15	2.75
Silver Ball.....	(P)	White	Tall	Oct. 15	2.50
Irene.....	(B)	Wh. Yel. Ctr.	Med.	Oct. 15	2.75
YELLOW					
Butterball (H).....	(B)	Golden	Short	Sept. 1	3.00
*Early Gold.....	(P)	Golden	Short	Sept. 5	4.00
Yellow Cushion.....	(C)	Lt. Yel.	Short	Sept. 8	2.75
Golden Hours.....	(P)	Chrome Yel.	Med.	Sept. 8	3.25
*W. P. Snyder.....	(LP)	Apr. Or.	Med.	Sept. 10	3.50
*Pomponette.....	(P)	Golden	Short	Sept. 15	3.00
Sunapee.....	(P)	Dp. Lemon	Tall	Sept. 15	3.25
*Yellow Supreme (H).....	(C)	Bright Lemon	Short	Sept. 15	3.00
*Yellow Chris. Columbus.....	(LD)	Bright Lemon	Med.	Sept. 15	6.25
Yellow Avalanche.....	(LD)	Lt. Lemon	Tall	Sept. 15	3.25
*Early Yellow.....	(B)	Dp. Lemon	Short	Sept. 15	2.75
Bambi.....	(D)	Fawn	Med.	Sept. 15	3.25
Defiance (H).....	(D)	Golden	Tall	Sept. 15	3.50
Golden Carpet.....	(P)	Golden	Short	Sept. 15	5.00
*M. J. Costello.....	(D)	Golden	Short	Sept. 20	3.25
Old Gold.....	(P)	Golden	Med.	Sept. 20	3.25
*September Sunshine.....	(S)	Bright Lemon	Med.	Sept. 20	3.25
Wychwood.....	(LP)	Canary Yel.	Med.	Sept. 20	3.25
Canary Wonder.....	(P)	Canary	Med.	Sept. 25	6.25
Charles Nye.....	(LP)	Dp. Lemon	Tall	Sept. 25	3.25
*Honeycomb.....	(P)	Golden	Med.	Sept. 25	3.00
*Moonlight (New).....	(D)	Bright Yellow	Med.	Sept. 25	7.50
Catherine Collins.....	(B)	Lemon	Tall	Sept. 25	3.25
Lee Powell.....	(LD)	Chinese Yel.	Tall	Sept. 25	6.25
Tangerine.....	(LD)	Dp. Orange	Med.	Sept. 25	3.25
Flaxen Beauty.....	(LD)	Golden	Med.	Oct. 1	6.25
King Midas.....	(LD)	Lemon	Med.	Oct. 1	2.75
Zantha.....	(B)	Canary Yel.	Med.	Oct. 1	3.25
Chiquita.....	(P)	Dp. Lemon	Med.	Oct. 1	3.25
James Eadie.....	(LP)	Dp. Chrome	Tall	Oct. 5	3.25
Polaris.....	(S)	Golden Buff	Tall	Oct. 5	4.50
*Mrs. Rotan.....	(LD)	Dp. Chrome	Med.	Oct. 5	3.25
*Garland (New).....	(S)	Bright Yellow	Med.	Oct. 5	5.00

*Recommended for Mother's Day Pot Plants

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Garden or Hardy Chrysanthemums

Variety	Type	Color	Height	Matures	Price 50 Only
YELLOW (Cont.)					
Treasure.....	(P)	Golden	Med.	Oct. 10	\$5.00
Yellow Spoon.....	(Spoon)	Lt. Yellow	Med.	Oct. 10	2.75
Golden Spoon.....	(Spoon)	Golden	Med.	Oct. 10	2.75
Yellow Blanket.....	(B)	Bright Lemon	Med.	Oct. 10	3.25
Bright Forecast.....	(P)	Lemon	Med.	Oct. 10	4.50
*Gold Rush.....	(S)	Lemon	Med.	Oct. 10	4.50
Nytoda (New).....	(S)	Golden Apr.	Med.	Oct. 12	7.50
Sweepstake.....	(P)	Lemon	Med.	Oct. 12	4.50
*Lemonade.....	(P)	Ivory Yel.	Med.	Oct. 12	4.50
*Judith Anderson.....	(B)	Golden	Med.	Oct. 15	2.75
Rodell Imp.....	(B)	Lt. Lemon	Med.	Oct. 15	2.50
Yellow Irene.....	(B)	Lt. Lemon	Med.	Oct. 15	2.75
BRONZE and RED					
Early Harvest.....	(C)	Mah. Or.	Short	Sept. 8	3.25
Harbinger.....	(D)	Golden Br.	Med.	Sept. 8	3.25
*Early Bronze.....	(B)	Orange Br.	Short	Sept. 8	2.75
Autumn Song.....	(D)	Wine Rose	Med.	Sept. 10	3.25
Red Gold.....	(B)	Red & Gold	Med.	Sept. 15	3.25
September Bronze.....	(B)	Golden Br.	Med.	Sept. 20	2.75
Goblin.....	(P)	Golden Br.	Tall	Sept. 20	2.75
Red Glow.....	(P)	Dark Red	Med.	Sept. 20	4.00
Scarlet Crimson.....	(D)	Bright Red	Med.	Sept. 20	3.25
Mandalay.....	(P)	Orange Br.	Tall	Sept. 25	3.25
Champion Cushion.....	(C)	Dp. Bronze	Short	Sept. 25	2.75
Commander Cushion.....	(C)	Red	Short	Sept. 25	2.75
Mahogany Cushion.....	(C)	Jasper Red	Short	Sept. 25	4.00
Marionette.....	(P)	Rust Red	Med.	Sept. 25	4.50
Remembrance.....	(LD)	Dp. Carmine	Med.	Sept. 28	5.00
Kath. Lehman.....	(LD)	Orange Br.	Med.	Sept. 28	5.00
Mayford's Triumph.....	(L-inc)	Scarlet Br.	Tall	Sept. 28	4.00
Mogul (New).....	(P)	Orange Rust	Med.	Oct. 1	7.50
Fiesta.....	(P)	Orange Rust	Med.	Oct. 1	3.50
Inspiration.....	(LD)	Apr. Or.	Tall	Oct. 1	3.25
Magnificent.....	(LD)	Plum Red	Tall	Oct. 1	3.50
Red Riding Hood.....	(D)	Bright Red	Med.	Oct. 1	3.25
Sam Williston.....	(C)	Firey Red	Short	Oct. 1	2.75
*Bonfire.....	(D)	Bright Red	Med.	Oct. 1	3.50
Brigadier (New).....	(LP)	Carmine	Med.	Oct. 1	7.50
Cardinal Spoon.....	(Spoon)	Red. Br.	Med.	Oct. 1	3.50
Cydonia.....	(LD)	Mahogany	Tall	Oct. 5	2.75
Meditation.....	(LP)	Jasper Red	Tall	Oct. 5	3.25
*September Cheer.....	(S)	Cherry Red	Med.	Oct. 5	2.75
Burgundy.....	(LD)	Wine Red	Tall	Oct. 5	2.75
Firecracker (New).....	(D)	Burnt Orange	Tall	Oct. 5	5.00
Ruby Pompon.....	(P)	Ruby Crimson	Med.	Oct. 5	2.75
*Red Velvet.....	(LD)	Dk. Crimson	Med.	Oct. 5	3.25
*Mona.....	(P)	Rust Bronze	Med.	Oct. 5	4.50
Avalon (New).....	(P)	Orange Br.	Tall	Oct. 5	7.50
Courageous.....	(LD)	Dark Ruby	Med.	Oct. 5	3.25
Sequoia.....	(LD)	Lt. Amber	Med.	Oct. 5	2.75
Panorama (New).....	(D)	Orange Rust	Tall	Oct. 8	7.50
Aviator.....	(P)	Copper	Med.	Oct. 8	3.25
Amber Glow.....	(LD)	Rosey Br.	Tall	Oct. 8	3.25
The Chief.....	(D)	Scarlet & Gold	Med.	Oct. 10	2.75
Huntsman.....	(LD)	Scarlet Or.	Tall	Oct. 10	4.50
Air-way Debut.....	(LD)	Golden Br.	Med.	Oct. 10	3.25
Bokhara.....	(D)	Crimson	Med.	Oct. 10	4.00
*Carnival.....	(LP)	Burnt Or.	Med.	Oct. 10	3.50
*James Stewart.....	(P)	Apr. Gold	Tall	Oct. 10	4.50
Blueblood.....	(LD)	Amaranth Red	Tall	Oct. 10	5.00
Caravan.....	(LD)	Sal. Bronze	Med.	Oct. 10	5.00
Carmine Queen.....	(LP)	Carmine	Tall	Oct. 10	4.50
*Bamboo.....	(S)	Buff Or.	Tall	Oct. 10	4.50
*Calico.....	(S)	Coral Br.	Tall	Oct. 10	4.50
Fireside.....	(D)	Burnt Or.	Tall	Oct. 10	4.50
Fashion.....	(D)	Rosewood	Med.	Oct. 12	4.50
Admiral (New).....	(D)	Crimson Red	Tall	Oct. 12	5.00
*Witchery.....	(D)	Golden Br.	Med.	Oct. 12	4.50
Nokomis.....	(LD)	Reddish Br.	Med.	Oct. 12	4.50
Nocturne.....	(P)	Crimson	Med.	Oct. 12	4.50
Robinhue.....	(LD)	Dk. Red	Tall	Oct. 15	4.50
Beacon.....	(LD)	Coral Apr.	Tall	Oct. 15	4.50
Bronze Pyramid.....	(LD)	Orange Br.	Tall	Oct. 15	3.25
*Carmelita.....	(LD)	Apr. Br.	Tall	Oct. 15	4.50
Cocktail (New).....	(P)	Salmon Or.	Tall	Oct. 15	5.00
Rajah (New).....	(S)	Scarlet Red	Tall	Oct. 15	5.00

Garden or Hardy Chrysanthemums

Variety	Type	Color	Height	Matures	Price 50 Only
PINK AND LAVENDER					
Gladness.....	(D)	China Rose	Short	Aug. 28	\$3.50
Dr. Longley.....	(D)	Rose Pk.	Med.	Sept. 1	4.50
Salmon Precose.....	(LD)	Salmon Pk.	Short	Sept. 1	3.50
Welcome.....	(S)	Mellow Purple	Med.	Sept. 1	2.75
Ambrosia.....	(D)	Peach Pk.	Med.	Sept. 5	3.50
Purple Star.....	(P)	Purple	Med.	Sept. 5	2.75
*Major Cushion.....	(C)	Dp. Lav.	Short	Sept. 8	2.75
Barb. Small.....	(P)	Lav.	Tall	Sept. 10	3.25
Lav. Lassie.....	(C)	Lt. Lav.	Short	Sept. 10	5.00
Nye's Favorite.....	(D)	Lav.	Med.	Sept. 10	3.50
Orchid Helen.....	(D)	Orch. Lav.	Med.	Sept. 10	5.00
Chippewa.....	(LD)	Bright Prpl.	Med.	Sept. 15	3.25
Violet.....	(P)	Amaranth Pk.	Med.	Sept. 15	3.25
Pink Princess.....	(B)	Lt. Pink	Med.	Sept. 20	3.50
Achievement.....	(D)	Dp. Salmon	Short	Sept. 20	3.25
Fair Bow.....	(P)	Lav. Pk.	Med.	Sept. 20	3.50
Tapestry.....	(LD)	Bright Pk.	Med.	Sept. 20	5.00
Heather Bloom.....	(D)	Heather Pk.	Med.	Sept. 20	3.00
Alert.....	(LD)	Dk. Purple	Med.	Sept. 20	4.00
Olive Longland.....	(LD)	Apr. Salmon	Med.	Sept. 25	2.50
Imp. Early Wonder.....	(P)	Dp. Lav.	Med.	Sept. 25	3.00
*Spellbound.....	(D)	Lav.	Med.	Sept. 25	3.25
Capt. J. Smith.....	(C)	Lav. Pk.	Short	Sept. 25	2.75
Pink Beauty.....	(D)	Salmon Pk.	Med.	Sept. 25	2.75
September Dawn.....	(D)	Rose Pink	Med.	Sept. 25	3.00
Rosita.....	(B)	Persian Rose	Med.	Sept. 28	3.25
Betty.....	(LD)	Pk. Rose Ctr.	Tall	Sept. 28	3.25
Patricia Lehman.....	(D)	Peach Pk.	Tall	Sept. 28	5.00
Coral Sea.....	(D)	Buff Rose	Med.	Oct. 1	2.75
Myrtle Walgreen.....	(LP)	Amar. Prpl.	Med.	Oct. 1	3.50
*Tiffany Rose.....	(S)	Dp. Rose	Med.	Oct. 1	2.75
*Mrs. DuPont.....	(LD)	Peach Pk.	Tall	Oct. 5	2.75
Enterprise (New).....	(P)	Amaranth	Tall	Oct. 5	7.50
Pink Surprise.....	(D)	Lav.	Tall	Oct. 5	4.00
*Lavender Lady.....	(D)	Lav. Pk.	Tall	Oct. 5	3.50
Mellow Glow.....	(P)	Peach Pk.	Tall	Oct. 5	3.50
Courtier (New).....	(D)	Lav. Pk.	Med.	Oct. 10	5.00
Lassie (New).....	(D)	Dark Pk.	Tall	Oct. 10	5.00
Dream Girl.....	(P)	Lt. Lav.	Med.	Oct. 10	4.00
Argonne.....	(P)	Dk. Lav.	Med.	Oct. 10	4.00
Orchid Spoon.....	(Spoon)	Orch. Lav.	Med.	Oct. 10	2.75
Rose Spoon.....	(Spoon)	Lav. Rose	Med.	Oct. 10	2.75
Masquerade.....	(P)	Lav. Rose	Med.	Oct. 10	3.50
*Joybringer.....	(D)	Salmon Rose	Short	Oct. 10	4.50
Winsome.....	(L-Ref)	Lav. Purple	Tall	Oct. 10	4.00
Sweetheart.....	(S)	Lt. Lav.	Tall	Oct. 10	4.50
*Serenade.....	(S)	Magenta	Tall	Oct. 10	4.50
Elizabeth Hood (New).....	(LP)	Lav. Pk.	Med.	Oct. 12	7.50
Salute.....	(S)	Dp. Orchid	Tall	Oct. 12	4.50
Allegro.....	(P)	Shrimp Pk.	Tall	Oct. 12	3.25
Adagio.....	(P)	Raspberry Rose	Tall	Oct. 12	4.50
Dawn Rose.....	(LD)	Grenadine Pk.	Med.	Oct. 15	4.00
Symphony.....	(D)	Mauve & Lav.	Tall	Oct. 15	2.75
*Jewell.....	(P)	Lav. Pk.	Med.	Oct. 15	3.00
*Dk. Jewell.....	(P)	Dk. Lav.	Med.	Oct. 15	3.00

Large flowering mums which are normally grown in the greenhouse, but also are good outside, should be disbudded to one bloom per stem.

WHITE

Perfection.....	(L-Inc)	Cream	Tall	Oct. 10	4.00
Silver Sheen.....	(M-Inc)	White	Tall	Oct. 20	2.75

YELLOW

Harvest Golden.....	(L-Inc)	Dp. Golden	Tall	Oct. 5	4.00
Gold Lode.....	(M-Ref)	Dp. Lemon	Med.	Oct. 15	2.75
Celestra.....	(M-Inc)	Lemon	Tall	Oct. 15	3.00
Mrs. Kidder.....	(L-Inc)	Dp. Lemon	Tall	Oct. 15	2.50

BRONZE and RED

Mayford's Triumph.....	(L-Inc)	Scarlet Or.	Tall	Sept. 28	4.00
Amber Bright.....	(L-Inc)	Amber Br.	Tall	Oct. 8	4.00

PINK

Winsome.....	(L-Ref)	Lav. Prpl.	Tall	Oct. 10	4.00
Pink Chief.....	(L-Inc)	Lav.	Tall	Oct. 15	2.75
Major Bowes.....	(L-Inc)	Dp. Lav.	Tall	Oct. 15	3.00

MINIMUM ORDER 50 CUTTINGS OF A VARIETY. SEE LIST ON PAGE 52 FOR QUANTITY PRICES.

Best Introductions of Previous Years which Deserve Special Consideration

WHITE

ENCORE—Intermediate pure white pompon flowering with Little America and Sea Gull in the shading program. Also good for late Sept. and Oct. in the cloth house.

FORTUNE—A formal white pompon. Omega growth and production. Freer than Snowcap. Achieves a new standard for high quality in white pompons for October 15 to March 15. 13-week response.

HALO—Nov. 5. White daisy for cloth house. The most productive early white daisy. For best results the time between pinch and shade should not exceed 28 days. 9-week response.

ILLINI SNOWDRIFT—A pure white spider that is grown as a pompon. Production is good. This variety can be shaded from June to October. A good keeping novelty.

PARAMOUNT—Nov. 28. Intermediate white pompon. Larger than Priscilla. Sunnyside growth with good response. Freer and sturdier growth than Cordova. Tolerates a wide temperature range. For October through March flowering. 11-week response.

SILVERSMITH—A large decorative pure white. Follows Cameo naturally. Strong, free growing with no tendency toward blindness.

YELLOW

BOJANGLES—Nov. 20. Yellow daisy. Intense color, heavy petalage. Brighter, livelier and earlier than Champagne or Cinderella. November through March. 11-week response.

FORTY-NINER—Flowering November 15, this round yellow pompon is one of the best for a competitive market.

SHAMROCK—Dec. 15. Large yellow decorative. A large yellow Silversmith. Heavy Yuleflame growth and production, November through February flowering. 13-week response.

PINK

BALLERINA—Intermediate pink single. Good for shading and particularly for June flowering. Best with some disbudding. Better form and color than October Pink.

REWARD—Oct. 25. A very productive deep pink daisy that holds color in July and August. Easily the outstanding early pink daisy for June 15 to September 15 flowering. 8-week response.

TAFFETA—Nov. 15. A deep pink decorative for September 15 to Thanksgiving. Also good from April 15 to June 15. 10-week response.

BRONZE

BEAUREGARD—Nov. 1. A reddish orange pompon. Somewhat similar to Seneca but holds its color better. A very versatile variety that produces good flowers every month of the year. 9-week response.

BUCKSKIN—Oct. 25. A tawny bronze daisy. Easily replaces California Bronze Daisy in the early cloth-house program. Production is outstanding. 8-week response.

MRS. DEWEY—Nov. 20. A heavy-petaled deep bronze single for Thanksgiving.

RUBICON—Early bronze red decorative to flower with Mary McArthur in July, August and early September.

RED

CHEVRON—No. 10. An intense red pompon. Resembles a red Cossandra, with a better spray formation and more decorative form. Holds color better than Red Rust or Seneca and is being used in flowering programs from May 15 to early November. 10-week response.

GALAXY—Intermediate bronze single. Same season as Viking and Cavalcade with improved growth habit.

PARAGON—Nov. 15. A large red pompon. Heavy producer. A red Masterpiece with good flower substance. September 1 to November 20. 10-week response.

CHRISTMAS GREETING—Dec. 20. Large red decorative. The one red pompon for Christmas with good production. It has a place in the flowering program from November 15 to February 15. 13-week response.

Gloeckner

CHRYSANTHEMUM CUTTINGS

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CHRYSANTHEMUM CUTTINGS

Insecticides, Fungicides and Fumigants

Aramite 15 W.....	4 lb bag 3.20	
Calcium Cyanide G. Fumigant.....	5 lbs. 3.75	25 lbs. 12.50
Deenate 50-W (DDT).....	4 lbs. 2.25	25 lbs. 11.25
Detex.....	gal. 11.00	5 gals. 50.00
Fermate.....	3 lbs. 2.45	Case (36 lbs.) 25.80
		carton of 24 units
Fulex Parathion Fumigator.....	Size of unit	
	1,000 cu. ft.	9.00
	2,000 cu. ft.	9.00
	5,000 cu. ft.	12.00
	10,000 cu. ft.	15.00
	20,000 cu. ft.	24.00
Isotox 15 (supplied in 50 lb. bags only).....	50 lb. drum	12.00
	100 lb. drum	22.50
Lethalaire G-52 Bombs.....	4 lb. cylinder	6.50
Lethalaire G-54 Bombs.....	4 lb. cylinder	8.00
Lethalaire G-56 Bombs.....	4 lb. cylinder	6.50
Nicofume Liquid.....	gal. 12.55	
Nicofume Pressure Fumigators.....	½ lb cans (12 cans)	4.60
	1 lb. cans (12 cans)	7.95
NNOR.....	gal. 10.00	
Optox (10% DDT).....	gal. 12.00	
Plant Fume 103.....	5,000 cu. ft. carton—36	10.50
	20,000 cu. ft. carton—12	12.00
Parathion Dust 2%.....	25 lbs. 3.75	50 lbs. 7.50
Parathion Spray 15% Wettable.....	4 lb. bag 2.88	25 lbs. 16.75 50 lbs. 32.50
Parzate		
(Powder).....	3 lb. bags 2.85	case (36 lbs.) 31.20
(Liquid).....	5 gal. cans 9.50	
P-40.....	25 lbs. 7.25	50 lbs. 13.75
	100 lbs. 26.00	1000 lbs. 245.00
Sodium Selente.....	lb. 7.00	
Vapotone.....	gal. 11.90	
Zerlate.....	3 lbs. 2.45	case (48 lbs.) 25.80

For your other needs refer to your

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*Carnation Manual and
Seed Catalog*



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